SOUNDER COMMUTER RAIL EMERGENCY RESPONDER MANUAL

SOUNDTRANSIT

September 2012

Rev. 0

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SOUNDER COMMUTER RAIL EMERGENCY RESPONDER BINDER

This document is a compilation of Sounder Commuter Rail general information, systems, maps, and related resources. Emergency Responders will find this compendium helpful as an orientation guide for new members, and study guide for on-going refreshers. Although accurate at the time of production, changes in both emergency responder and Sounder policies and procedures will require updates of this document.

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SECURITY STATEMENT

This document contains information on the engineering systems and operating procedures for the Sounder Commuter Rail System as well as protocols for responding to emergencies related to the system. This information would be considered valuable to individuals seeking to disrupt the system and inflict injuries on its passengers. The contents of this document are considered sensitive and are not intended for general distribution.

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1. INTRODUCTION

1.1 GENERAL INFORMATION

A. Sounder commuter rail may present significant challenges for emergency responders. These range from increased response times due to factors such as traffic impacts in 'at grade' sections to the unique environment presented by the topography of the Sounder system which may complicate access to the equipment. Some of the types of emergencies that might involve "Sounder" include mass casualty incidents, fires, collisions, tunnel rescue and heavy rescue.

B. The following information provides basic information on the Sounder system and the facilities in which it operates.

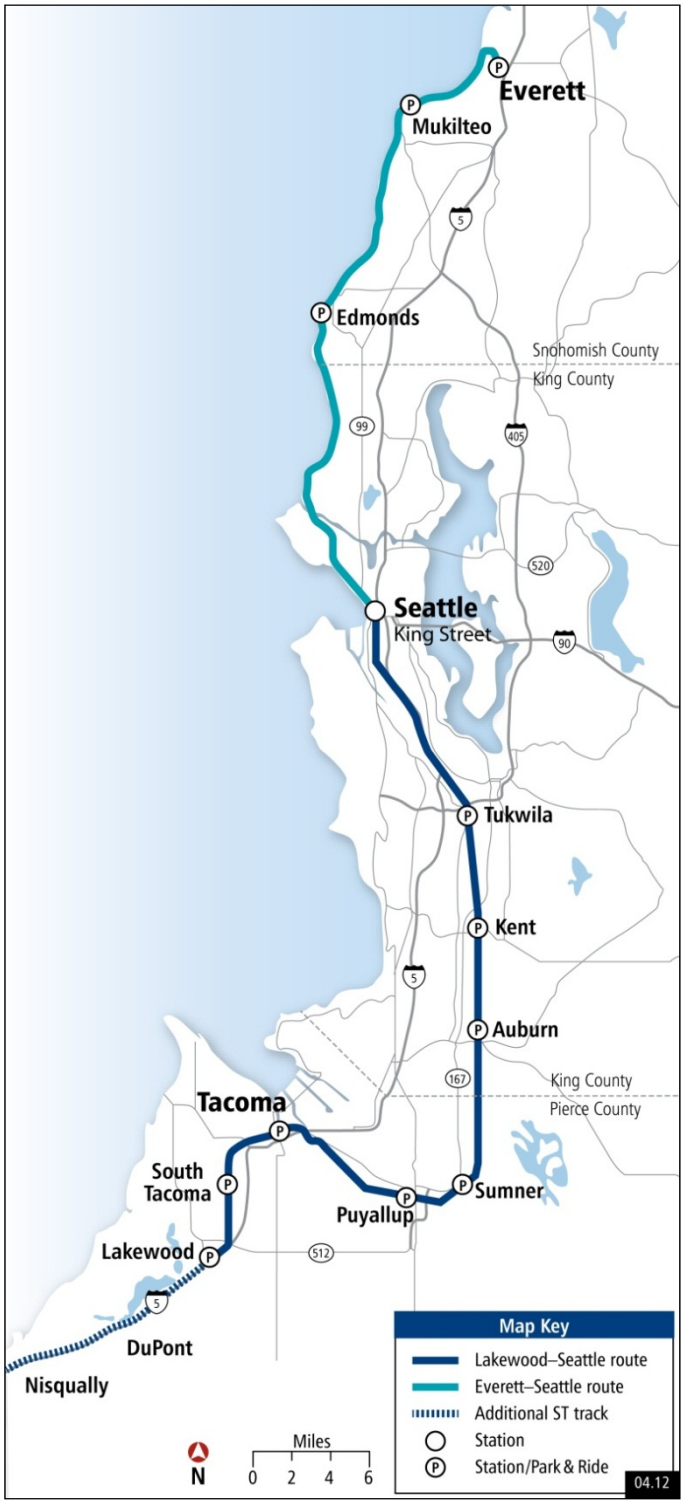
C. There are currently 73.6 miles of track between Everett and Tacoma with service operating during the commuter period as well as for select special events. In 2012, service will extend 8 miles south to Lakewood for a total of 82 miles of track from Everett to Lakewood. There are 10 stations, with an additional 2 stations opening in 2012 with the extension to Lakewood.

D. Sounder is a diesel powered passenger rail system running on tracks that are part of existing railroad systems, primarily the Burlington Northern Santa Fe, or BNSF Railway. The Sounder route also runs on track owned by Tacoma Rail and Sound Transit. Tracks are shared with freight trains and Amtrak passenger trains.

E. Sound Transit contracts with BNSF for operations, Amtrak to provide fleet maintenance, and Stacy and Witbeck to provide track and signal maintenance for the ST owned corridor between Tacoma and Lakewood.

1.2 WHERE DOES SOUNDER OPERATE?

Figure 1-1 Map of Sounder Alignment



1.3 WHY IS SOUNDER IMPORTANT TO EMERGENCY RESPONDERS?

A. Large scale or catastrophic events involving rail systems while very rare in the context of the number of passengers carried and the distances traveled must be diligently prepared for

B. However safe, it is important to remember that "Sounder" is still a railroad running through some of the most densely populated parts of the Puget Sound Region. The tracks (or "right of way") include:

   1. Elevated bridges.
   2. Tunnels (under portions of downtown Seattle, and Everett).
   3. Operate through at dozens of grade crossings
   4. Operate over a 2.85% grade in Tacoma (one of the steepest commuter rail grades in the country).

C. Even a small event involving "Sounder" can generate a large incident footprint and pose unique hazards and challenges for emergency responders.

D. The presence of the transportation infrastructure itself can even present challenges when unrelated emergencies adjacent to rail property need to be managed. Merely crossing the right of way en route to an unrelated alarm can present a significant hazard.

2. SOUNDER COMMUTER RAIL

2.1 SOUNDER RAIL VEHICLES

A. Sounder trains, or "consists," consist of an Engine, Coach cars, and a Cab Car.

B. When two or more cars are coupled together, it is called a Consist. Typically, trains between Tacoma and Seattle are 7 cars, and trains between Everett and Seattle are 3 cars. Consists on Sounder trains may be up to ten cars.

C. Sounder commuter trains are powered by diesel EMD F59PHI – 3000HP Streamlined Passenger Locomotives.

D. Sounder coaches are bi-level commuter cars manufactured by Bombardier. They are 85 feet in length, 9 feet ten inches in width, 16 feet high from rail to roof, and weigh about 118,000 pounds. Coaches have up to 150 seats per coach. During commute hours, peak period trains typically carry up to 110 passengers per car. Special trains, such as Seahawk game trains, can carry about 300 passengers per car.

E. Commuter rail trains do not generate manifests with exact passenger counts and names (like Amtrak), but the conductor can provide an approximate passenger count.

F. Sounder trains operate as "Push-Pull" trains. Generally when the train is moving southbound, the Engineer operates the train from the locomotive at the front of the train. Generally when moving northbound, the locomotive is trailing, or behind the train, and the Engineer operates the train from the cab car. This is referred to as "Cab Car Lead".

G. The second north car on train sets between Seattle and Lakewood, and the north car of train sets between Seattle and Everett are designated ADA accessible cars. Passengers access these cars via "Mini-Highs" at station platforms. In the event of an emergency, the Conductor can tell emergency responders the number of ADA passengers on board, and can assist emergency responders in evacuating these passengers.

Figure 2-1 ADA Access from Mini-high

Figure 2-2 Sounder Coach and Cab Car Layout

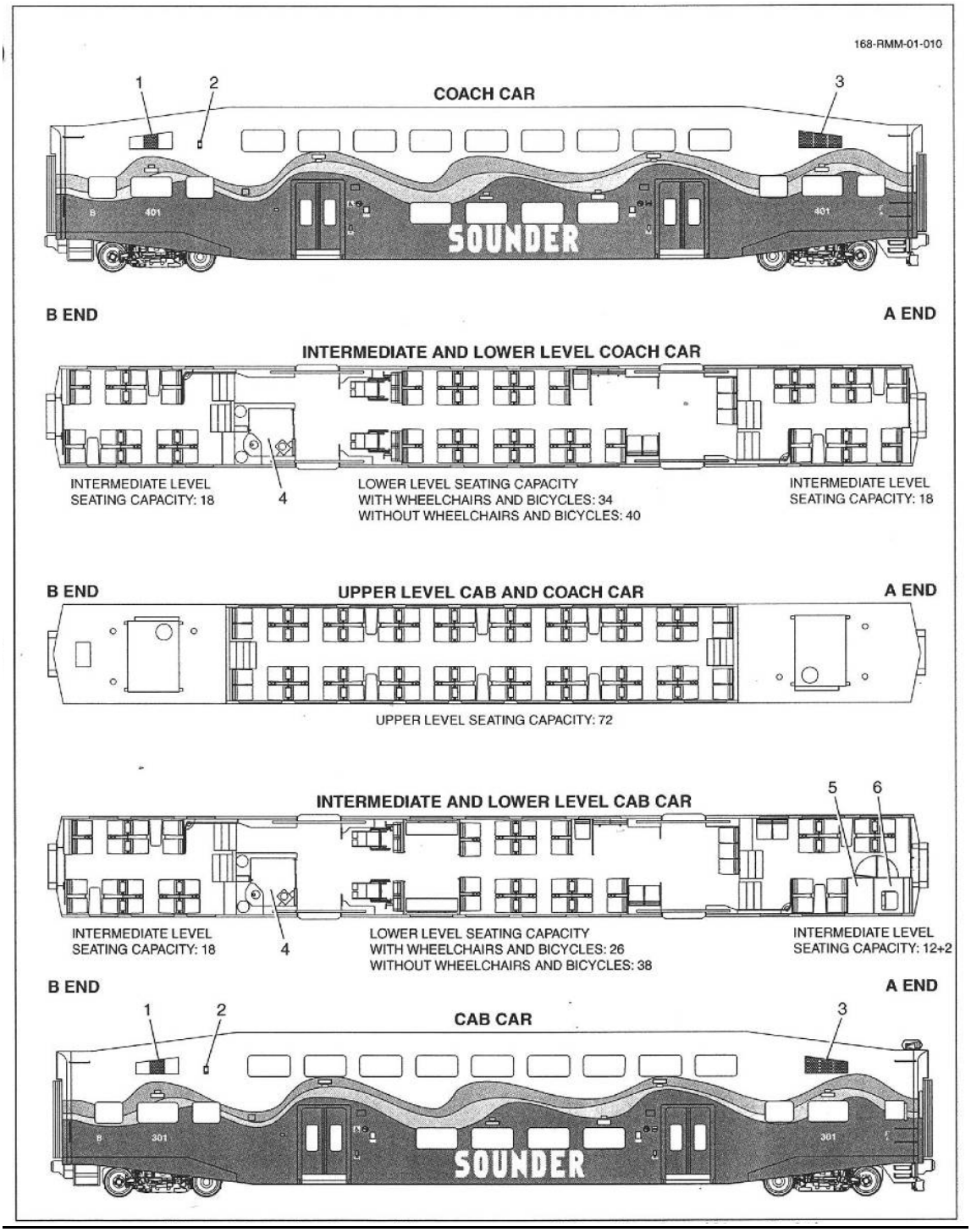
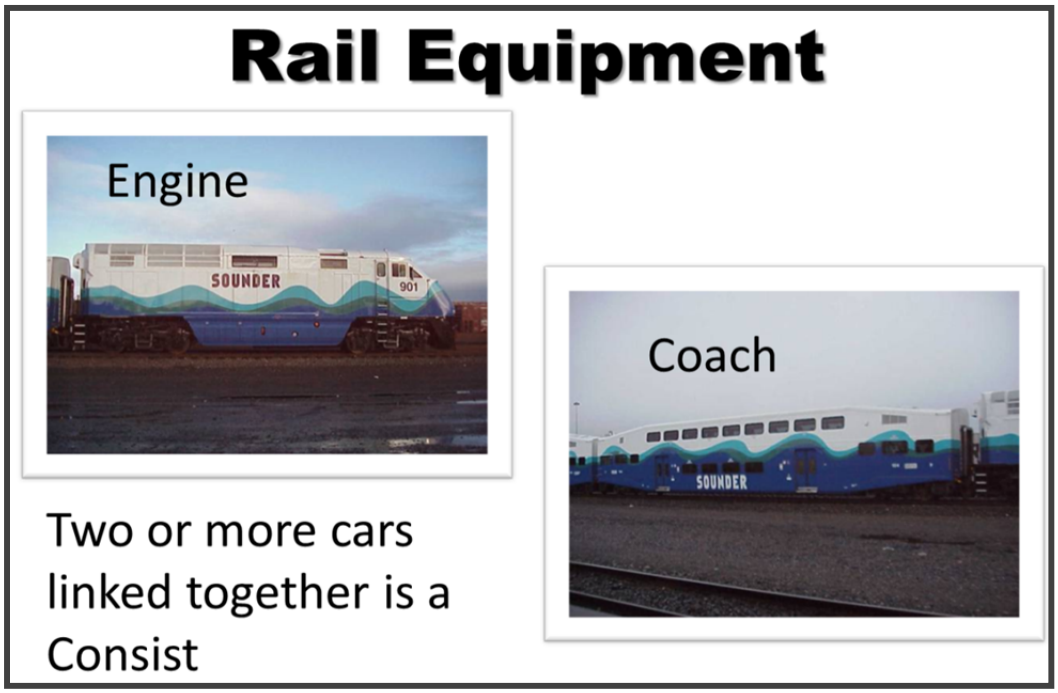


Figure 2-3 Sounder Equipment.



2.2 WHEEL ASSEMBLIES ("TRUCKS"), SUSPENSION AND BRAKES

A. Each car has two wheel assemblies which are generically called "trucks" (refer to Figure 2-4). The truck combines the suspension and brake system components with the wheels and connects them all to the car.

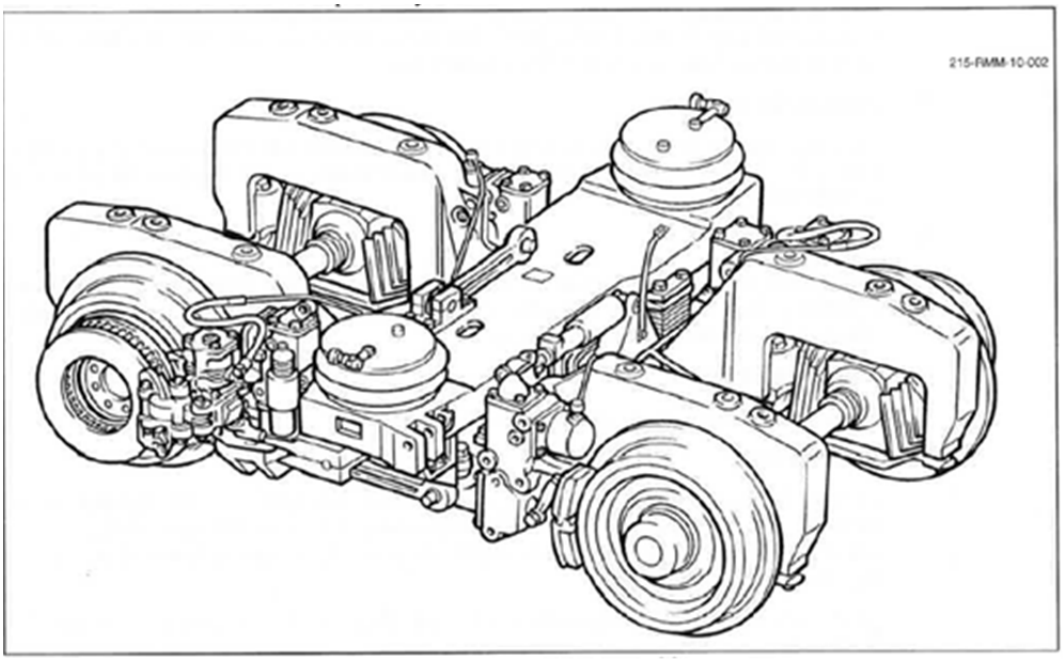
B. There are two air braking systems on the Sounder cars:

1. Each of the two trucks on a car has four tread brakes and two disc brakes. All the brakes operate at the same time and from the same brake cylinder line. – If during a brake application a wheel starts to slide, a fast response valve, the E-7 Decelostat, located in the brake cylinder line operates rapidly. This action vents the BC pressure contained within the brake actuators on the truck that has the sliding wheel-set, thus releasing the brakes. This feature reduces the chance of developing wheel flats.

2. A handbrake mounted on the collision post at the B end of the exterior of the car, is provided for when the car is not in use.

C. Emergency braking operations can be activated by pushing the mushroom button on the console, when the master controller is pushed all the way to the "FST" position or when the "track brake' button is depressed. Other features of the friction braking system common to cab and coach cars include automatic application of the emergency braking mode of the bp falls rapidly toward 0. This can be initiated from the operators brake valve, by a ruptured brake pipe line, or by the operation of an emergency brake valve, EBV are available to riders inside the car by the bathroom door stairwell, and on the A end of the car.

Figure 2-4 Wheel Assembly and Suspension System



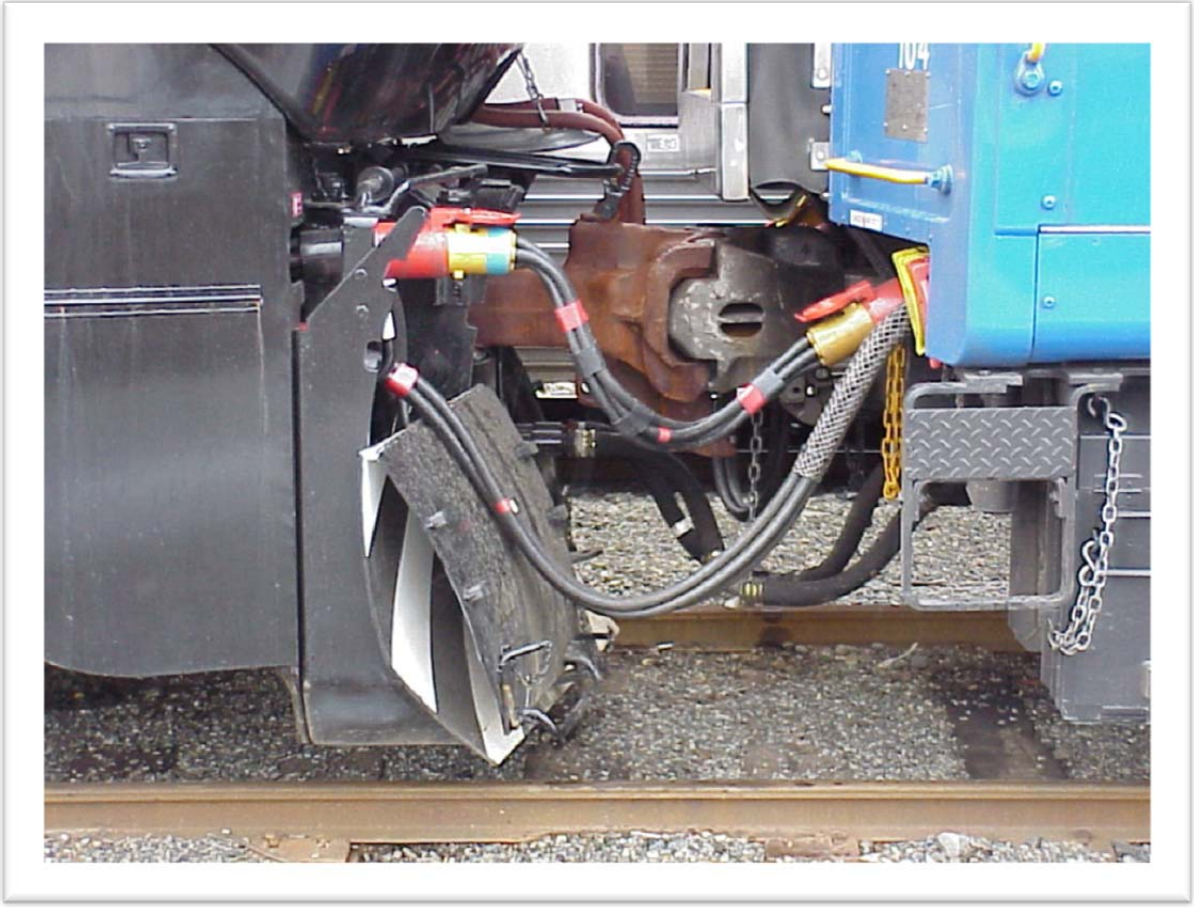
2.3 SUSPENSION

A. The car suspension system is comprised of a series of air bags inside the truck assembly that level the cars and provide for a smooth ride. The bulk of these components are hidden beneath removable shrouds at either end of the car.

2.4 COUPLERS

A. Mechanical couplers connect the train consist vehicles together. The couplers use the "clasped hand" principle. To couple, one or both knuckles must be open when the cars are pushed together. To uncouple, the cars are pushed together enough to take the load off the coupler (slack in) and the "cut" or uncoupling lever is turned by hand.

Figure 2-5 Coupled Cars with 480 Volt Cables and High Pressure Air Hoses



2.5 TRAIN POWER

Cables and pneumatic lines between train cars provide electrical and pneumatic power for the consist. Loose electrical cables or pneumatic lines are a hazard that emergency responders need to be aware of. If pneumatic hoses are disconnected, the release of pressure is a hazard; swinging air hoses can cause serious injuries or fatalities. Electrical cables can create a similar swing hazard

if released suddenly. If cables or pneumatic hoses must be disconnected, request that a representative from the railroad disconnect them.

A. **Head End Power (HEP):** is generated by the locomotive, and provides power to every car on the train behind the locomotive. Power is carried through 480 volt cables and provides power to train lights, wall outlets, and the HVAC system. There are two sets of 480 volt cables connecting each set of cars, and if any of these cables disconnects, HEP power is disabled from that point on.

B. **Pneumatic System:** Pneumatic lines carry 110 PSI and provide pneumatic power to the air brake system.

C. **Main Reservoir System (MR)**: carries up to 140 PSI, and provides pressure for toilets, water tanks, and doors.

D. **Battery Back Up System:** is provided by a 74 V DC NiCad battery system. The emergency battery back- up can power the PA system, emergency lighting, and doors for 4-6 hours. The battery back-up does not provide power for toilets or the HVAC.

2.6 EMERGENCY EXITS

A. Marking of Exits: The primary emergency exit for the commuter cars is the end doors, which are clearly and legibly marked on the inside of the car with luminescent material or, adequately illuminated to facilitate passenger recognition and access. This exit will preclude passengers from exiting into the potentially dangerous position of fouling the track; Sounder operates largely on multiple track lines. As indicated in emergency exiting material, the secondary exits are side doors, to be used under emergencies where end doors are blocked.

B. Evacuation instructions for each car are posted at “A” end of each car (refer to Figure 2-2), on the lower deck, near the respective exit. Sounder cars may also contain brochures with the emergency exiting instructions, using pictures for added understandability.

C. All cars also have emergency “cut here” markings on the roof of the exterior, to be used under the extreme conditions of a car on its side during a derailment (refer to Figure 2-6). Emergency Responders can shine a flashlight along the side of the train to quickly identify retro-reflective markings.

D. Instructions for operating the doors and windows for emergency exiting purposes are posted in clear and simple language at or near the door exit (refer to Figure 2-7).

Figure 2-6 Car Emergency "Cut Here" Markings

Figure 2-7 Instructions for Emergency Exiting by the Doors and Windows

2.7 EMERGENCY ACCESS WINDOWS

A. Emergency Access windows of the Coach and Cab cars can be removed in order to gain access or evacuate the vehicle. Each window has a black rubber strip that runs along the edge of the window. If the emergency windows of the need to be removed from the outside, the black rubber strip can be pried with a screwdriver, or cut and peeled off. Remove the windows from the outside of the rail car by cutting the rubber strip around the window

B. As the seal comes loose, avoid pulling the seal in one continuous motion. This could cause you to lose balance, and chances are, you will be standing on an uneven surface where balance is difficult to start with. Use a Hand-Over-Hand method.

C. The window weighs more than 80 pounds, and the height of the frame makes it difficult to handle. Removal of the window should be a two person job to avoid risk of injury.

Figure 2-8 Removal Rail Car Windows from the Outside

Figure 2-9 Removal of Rail Car Windows from the Inside

2.8 EMERGENCY EQUIPMENT

A. Each car requires a minimum level of emergency equipment, including

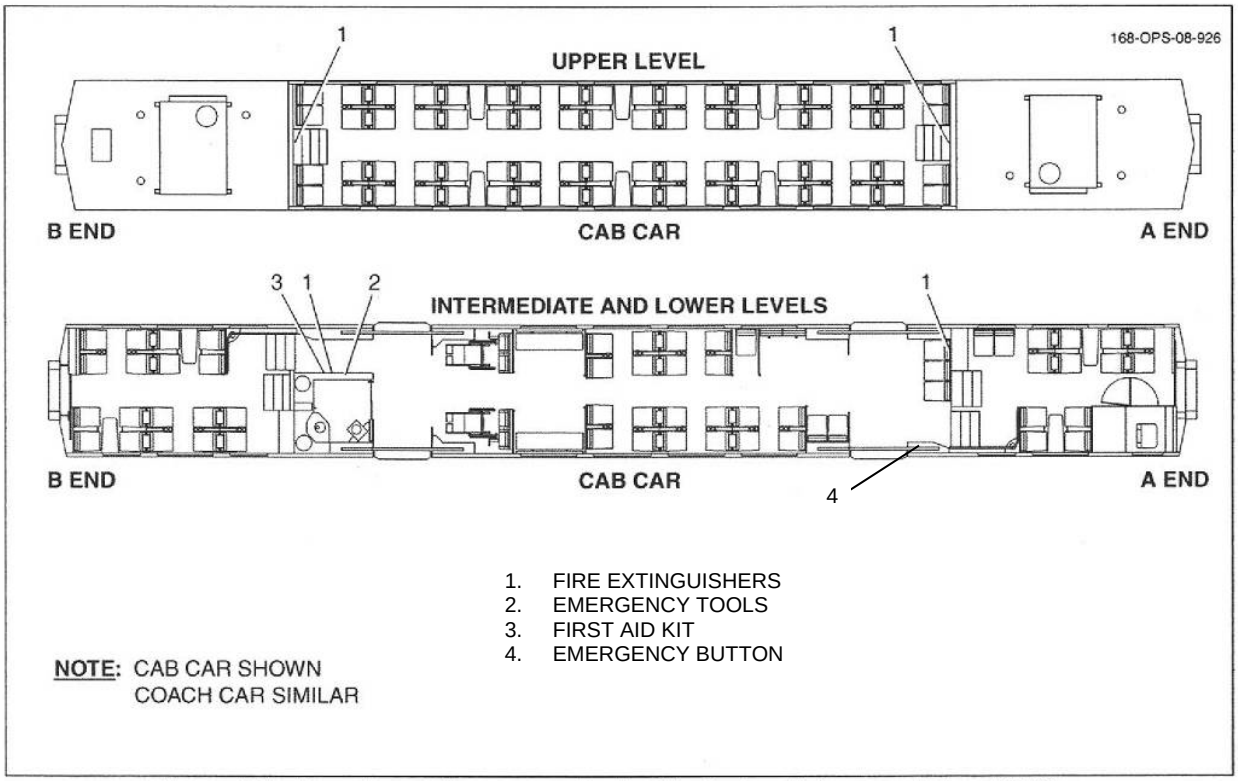
1. four fire extinguishers per car,
2. one set of pry tools per car,
3. one first aid kit,
4. one AED,
5. 30 emergency light sticks on each train,
6. Each crew member has a flashlight.

B. Pry tools, first aid kits and fire extinguishers are kept behind plexiglass covers. To remove the cover, simply use your finger or similar tool to insert into the rubber strip to pull down and away.

C. Coaches and cab cars are equipped with emergency lighting.

Figure 2-10 Emergency Equipment

Figure 2-11 Location of Emergency Tools, First Aid Kits, Fire Extinguishers



3. HOW THE TRAINS ARE POWERED

3.1 HEAD END POWER (HEP)

A. The diesel locomotive produces traction power for train movement.

B. Head End Power (HEP) supplies power to coaches.

C. Cars coupled together are connected by 480 volt cables and high pressure air hoses. In an emergency response, if you are uncertain of the status of the cables and hoses contact the engineer or conductor.

D. NEVER place any body parts BETWEEN THE COACHES OR between coaches and the LOCOMOTIVE.

E. In an emergency response, disrupted cables and air hoses can be extremely hazardous. This is also a very important rule to follow in non-emergency situations. If someone tries to climb through cars on a stopped train, the train can move suddenly, bumping cars together, and crushing the person caught between them.

4. TRACKS AND RAILROAD RIGHT OF WAY

4.1 TRACK OWNERSHIP

A. Tracks are private property. Personnel occupying tracks without permission from the track owner place themselves in danger and are trespassers.

B. Sounder operates on tracks owned by BNSF (from Everett to Tacoma), Tacoma Rail (From TR Junction to the Tacoma Dome Station), and Sound Transit (from the Tacoma Dome Station to Lakewood). The owner of a particular section of tracks is known as the Host Railroad.

C. The Railroad Right of Way (ROW) refers to the land adjacent to the tracks owned by the Railroad. At a minimum, this includes the area within 25 feet of both sides of the track.

D. The Host Railroad is responsible for maintenance and operations of their own tracks.

E. Emergency Responders should be familiar with the tracks crossing through their response area, including the name of the Host Railroad and how to contact them in an emergency.

4.2 DYNAMIC ENVELOPE

A. The dynamic envelope refers to the area four feet from the nearest rail, and includes the space occupied by a moving train.

B. When people or equipment are inside the dynamic envelope, this is referred to as “fouling the track.”

C. It is a violation of FRA rules to foul the track unnecessarily.

4.3 TRACK STRUCTURE

A. Modern tracks are made with continuous rail welded together to extend for miles. This eliminates the old “clickety clack” that you may associate with trains. While it also makes for a quieter and smoother ride, the perception that you can hear a train coming is dangerous. The continuous welded rail is susceptible to the effects of extreme heat and temperature fluctuations.

B. Many utility companies have made contractual agreements with the nation’s railroads to use the railroad right of way for fiber optic communication lines, and for natural gas and petroleum pipelines. Utilities may be buried next to the tracks at a depth of 30-45 inches below the ballast, and need to be considered when responding to a rail emergency.

C. Rails are under tension. If, a rail comes loose from the ties and the tension is released, the rail can move with high force.

Figure 4-1 Example of Rail that has Come Loose Following an Accident

5. TUNNELS

A. When Sound Transit trains operate in tunnels of 1000 feet or more in length, specific emergency preparedness and response actions are required. Emergencies occurring in tunnels can present unique readiness and response requirements. Tunnels are a type of structure that require pre-planning due to unique conditions and hazards.

B. Access is limited, and must be made by foot rather than by vehicle. Clearance within the tunnel is 1½-3 feet from the side of the car to the tunnel wall. Smoke from fires, or exhaust from diesel engines, can quickly create inhalation hazards.

C. Specific emergency response plans are required for tunnels greater than 1000 feet. The Sounder route includes two tunnels meeting this criteria.

D. Emergency Situations Guidelines – Tunnel

1. If the train can be moved, every effort should be made to move it from the tunnel in the most expeditious manner. If the train cannot be moved, the diesel engines must be shut down to minimize the effect of smoke and fumes.

2. Notify the appropriate BNSF dispatcher of the location and nature of the emergency and what actions the crew is taking.

3. The assessment and evaluation of passengers include those in wheelchairs and or who may be considered special needs passengers. This will included by not limited to, very young, older, infirm, persons with visual or hearing impairments.

4. If immediate passenger evacuation is not deemed necessary (i.e., no derailment, fire, or other dangerous conditions present); crewmembers must evaluate the need for emergency lighting and if necessary provide for such on-board emergency light devices (light sticks, employee flashlights, etc.).

5. Crewmembers must ensure access to emergency exits is clear and unobstructed. All means to egress (detrain) must be ready and available (e.g., ladders, stairs, etc.). Crewmembers must assess possible exit routes, both inside and outside the train (e.g., availability and status of bench walls) to determine their condition and ability to support a full evacuation of all train occupants. Every effort must be made to ensure evacuation occurs in a calm and orderly fashion.

6. Train Conductor and/or other on-board crewmembers shall communicate with the BNSF Dispatcher using the most effective means available. This may include radio, on-board telephone system or cellular telephone (if operable). It should be noted, however, most cellular service could not be depended upon to operate properly in a tunnel environment. The Train Conductor may therefore be required to dispatch a crewmember to make the required notification from outside the tunnel.

7. The BNSF Dispatcher shall take the necessary actions and make the proper notifications. If appropriate, the BNSF Dispatcher will also notify other users of the affected rail system to ensure proper re-routing of operations.

8. If necessary and practical, the BNSF Control Center will determine the availability of other trains located in the vicinity of the affected train and request assistance with evacuation and/or other services that may be required. If there are no trains in the general vicinity, a decision will be made to dispatch assistance to the affected area as soon as practical.

5.1 GREAT NORTHERN TUNNEL

A. The Great Northern Tunnel runs just north of King Street Station, and through downtown Seattle. It is a single bore tunnel built in 1906. It is 34.5 foot wide and 5,142 feet long, with a cement reinforced sleeve running the entire length. (Refer to Figure 5-1).

1. The Great Northern/King Street Tunnel is on the BNSF Scenic Subdivision at Mile Post 1.2 North Portal to Mile Post 0.0 King Street Station.

2. Double main tracks run through the tunnel at sea level grade. There are two complete curves, limiting authorized speeds to 30 mph for passenger trains and 20 mph for freight trains. The interior of the tunnel is equipped with minimum lighting designed for tunnel inspections and routine maintenance. Lighting may be used during an emergency, but it is not designed for emergency use and does not have a back-up battery source. BNSF can activate the light switch inside the tunnel if requested by emergency responders.

3. Double main tracks are at 15 foot centers, each centers at 7 ½ feet from tunnel walls

4. Repeaters within the Great Northern Tunnel allow for railroad radio communication with the Dispatcher from any location in the tunnel.

5. The tunnel does not have a mechanical ventilation system, although the Seattle Fire Department has a truck mounted mobile ventilation unit fan (MVU) purchased for this tunnel that can be deployed. SFD's 60" diameter fans use Positive Pressure Ventilation (PPV) technology, which creates a cone of air pressure sealing the tunnel opening, forcing smoke, heat and contaminants The tunnel does not have bench walls, refuge bays, or man bays.

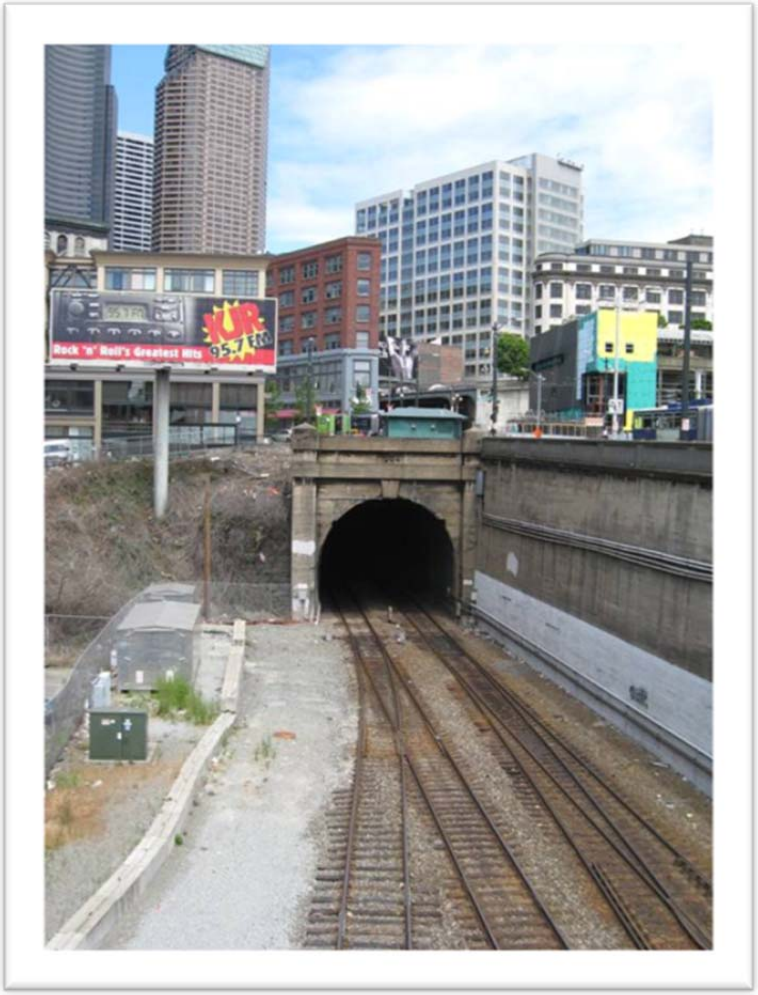
6. While operating in the Seattle tunnel, the primary communications between train and engine crew is maintained through the means of communications:

   a. Hand-held to locomotive/control car, control console mounted railroad radio

   b. Approved and issued Nextel 2 way radios, and

   c. On-board intercom.

Figure 5-1 Great Northern Tunnel



5.2 EVERETT TUNNEL

A. The east portal of the Everett tunnel is near Oakes Avenue in Everett, and the west is near rail buildings on Bond Street. (Refer to Figure 5-2).

B. It is a single bore tunnel, concrete lined, 16 feet wide, and 2440 feet long. It is 22 feet from the top of the rail to the crown.

C. The tunnel has a single tangent track with no curves.

D. The grade descends 0.5%, from 55 feet at the east portal to 43 feet at the west portal.

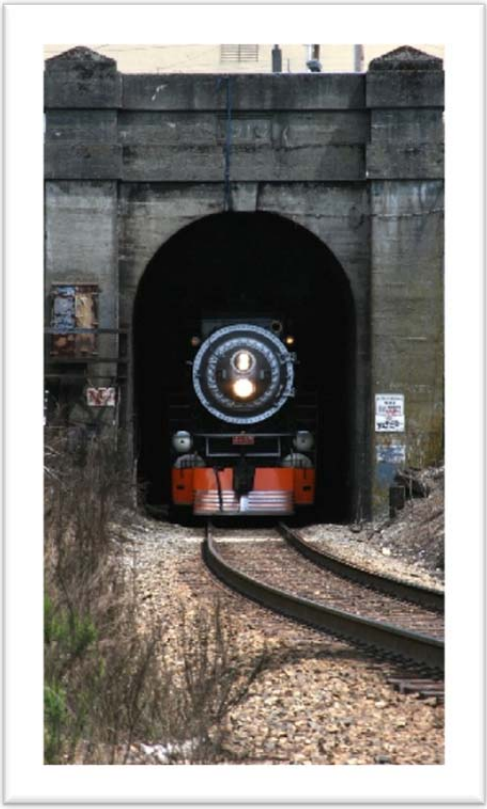
E. The tunnel was completed in 1910, and has no bench walls, no lights, no ventilation system, no refuge bays, and no man bays.

F. While operating in the Everett tunnel, the primary communications between train and engine crew is maintained through the means of communications:

1. Hand-held to locomotive/control car, control console mounted railroad radio,
2. Approved and issued Nextel 2 way radios, and
3. On-board intercom.

Figure 5-2 East Portal of the Everett Tunnel.

Figure 5-3 West Portal of the Everett Tunnel.



6. BRIDGES

6.1 BRIDGES AND ELEVATED STRUCTURES

A. There are 28 elevated structures over which Sounder operates between Everett and Lakewood, crossing over water and roads.

B. Access to elevated structures is usually by foot. Pre-planning for incidents on elevated structures in your jurisdiction should consider access, need for fall protection, and areas of safety. There is very little space, if any, for people to walk on these elevated structures without fouling the track, so it is of critical importance that contact is made with the railroad before approaching any incident scene on an elevated structure. First responders must confirm with the railroad that traffic has been stopped before approaching an elevated structure.

Figure 6-1.a Example of Difficulty in Evacuation on a Train Trestle.

Figure 6-1.b Example of Difficulty in Evacuation on a Train Trestle.

Table 1 — Elevated Structures: Bridges or Tunnels – Seattle Subdivision

Location: Seattle Subdivision	Begin MP	End MP	Tracks	Structure
Seattle	0.1X 0.4X 0.5X 1.85X	0..1X 0.4X 0.5X 1.85X	1,2 Lander Main 1,2 Lander Main 1,2 Lander Main 1,2 Lander Main	Ped Bridge Overhead Bridge Overhead Bridge Overhead Bridge Overhead
Argo	2.65X	2.65X	1,2	Bridge Overhead
Van Asselt	6.90X	6.90X	1,2	Bridge Overhead
South Seattle	8.40X	8.40X	1,2	Bridge Overhead
Renton Jct.	9.85X	9.86X	1,2	Bridge Water Under
Tukwila	10.49X	10.49X	1,2	Bridge Overhead
Tukwila	10.75X	10.75X	1,2	Bridge Road Under
Orillia	13.20X	13.20X	1,2	Bridge Overhead
Kent	13.1X 15.1X 15.38X 16.1X	13.1X 15.1X 15.38X 16.1X	1,2 1,2 1,2 1,2	Bridge Overhead Bridge Overhead Bridge Overhead Ped Bridge Overhead
Thomas	17.60X 17.7X*	17.60X 17.7X*	1,2 1,2	Bridge Road Under Bridge Water Under
Auburn	21.6X 21.8X 24.3X	21.6X 21.8X 24.3X	1,2 1,2 1,2	Ped Bridge Overhead Bridge Overhead Bridge Water Under
Pacific	24.90X	24.90X	1,2	Bridge Road Under

Location: Seattle Subdivision	Begin MP	End MP	Tracks	Structure
Summer	26.25X 27.25X 27.45X 27.60X	26.25X 27.25X 27.45X 27.60X	1,2 1,2 1,2 1,2	Bridge Water Under Bridge Road Under Bridge Road Under Bridge Water Under, Salmon Creek
Puyallup	29.4X* 31.28X 34.1X	29.4X* 31.28X 34.1X	1,2 1,2 1,2	Bridge Water Under, Puyallup River Bridge Overhead Bridge Water Under, Clark Creek
Clear Creek	37.60X	36.60X	1,2	Bridge Water Under Swan Creek

Note * indicates Flash Flood Warning

Table 2 — Elevated Structures: Bridges – Tacoma Mountain Belt Line

Location: Tacoma Rail Mtn. Belt Line	Begin MP	End MP	Tracks	Structure
Drainage Culvert	.82	.92	1	Bridge culvert under (reinforced concrete)
East Bay Street	1.07	1.08	1,2	Bridge (Steel) Road Under
Portland Avenue	1.12	1.13	1,2	Bridge (Steel) Road Under
East L Street	1.42	1.42	1,2	Bridge Overhead (reinforced concrete)
East J Street, East G Street, and East 26th Street	1.64	1.79	1,2	Bridge Road Under (Timber Rail Trestle)

Table 3 — Elevated Structures: Bridges – Sound Transit Lakewood Line

Location: Sound Transit Lakewood Line	Begin MP	End MP	Tracks	Structure
B Street Gully	2.13	2.14	2	Bridge Gully Under
I-705 Southbound	2.14	2.14	2	Bridge Overhead (Reinforced Concrete)
I-705 Northbound	2.16	2.16	2	Bridge Overhead (Reinforced Concrete)
A Street	2.21	2.22	2	Pedestrian Bridge Under
Pacific Ave.	2.28	2.29	2	Bridge (Steel) Road Under
Tacoma Ave.	2.63	2.63	2	Bridge Overhead (reinforced Concrete)
Yakima Ave.	2.78	2.78	2	Bridge Overhead (Reinforced Concrete)
SR 16	3.82	3.82	2	Bridge Overhead (Reinforced Concrete)
Union Ave.	4.92	4.92	2	Bridge Overhead (Reinforced Concrete)
66th Street	6.89	6.90	2	Bridge (Steel) Road Under
Lakewood	10.0	10.0	2	Pedestrian Bridge Overhead

Table 4 — Elevated Structures: Bridges or Tunnels – Scenic Subdivision

Location: Scenic Subdivision	Begin MP	End MP	Tracks	Structure
Seattle	0.11	1.11	1, 2	Great Northern Tunnel
Seattle	1.30 1.9 2.3 2.9	1.30 1.9 2.3 2.9	1,2 1,2 1,2 1,2	Pedestrian Bridge Overhead Pedestrian Bridge Overhead Pedestrian Bridge Overhead Pedestrian Bridge Overhead
Seattle	3.26	3.26	1, 2	Bridge Overhead
Seattle	3.42	3.44	1, 2	Bridge Overhead
Seattle	4.52	4.52	1, 2	Bridge Overhead
Seattle	5.14	5.14	1, 2	Bridge Overhead
Seattle	5.45	5.45	1, 2	Bridge Overhead
Seattle	5.65	5.65	1, 2	Bridge Overhead
Seattle	6.20	6.30	1, 2	Ballard Draw Bridge
Seattle	6.58	6.58	1, 2	Bridge Overhead
Seattle	6.77	6.77	1, 2	Bridge Road Under
Seattle	6.97	6.67	1, 2	Bridge Road Under
Seattle	7.91	7.91	1, 2	Bridge Road Under
Seattle	8.15	8.15	1, 2	Pedestrian Bridge Under
Seattle	10.12	10.12	1, 2	Pedestrian Bridge Overhead
Richmond Beach	13.86	13.86	1, 2	Private Bridge Overhead
Richmond Beach	14.50	14.50	1, 2	Bridge Overhead
Richmond Beach	15.15	15.15	1, 2	Private Bridge Overhead
Richmond Beach	15.21	15.21	1, 2	Private Bridge Overhead
Edmonds	17.00	17.00	1, 2	Private Bridge Overhead
Edmonds	23.34	23.34	1, 2	Pedestrian Bridge Overhead
Mukilteo	28.37	28.37	1, 2	Bridge Overhead
Everett	31.57	31.57	1, 2	Pedestrian Bridge Overhead
Everett	1783.96	1783.96	1	Bridge Road Under
Everett	1783.78	1783.78	1	Bridge Road Under
Everett	1783.66	1783.20	1	Everett Tunnel
Everett	1783.19	1783.19	1	Bridge Overhead
Everett	1783.15	1783.15	1	Bridge Overhead
Everett	1783.09	1783.09	1	Bridge Overhead
Everett	1782.97	1782.91	1	Bridge Overhead
Everett	1782.92	1782.92	1	Bridge Overhead
Everett	1782.64	1782.64	1	Pedestrian Bridge Overhead

Note * indicates Flash Flood Warning

7. SOUNDER FACILITIES

7.1 SOUND TRANSIT HEADQUARTERS

Union Station and Opus East

A. Sound Transit's main offices are located in historic Union Station within the International and Pioneer Square districts in Downtown Seattle -- not to be confused with King Street Station, which has the tall clock tower and serves as the Amtrak Rail Station and the Sounder commuter train station. Sound Transit also has offices at the Opus 625 building 2 blocks south from Union Station and the Fifth and Jackson building one block north of Union Station.

Sound Transit at Union Station

401 S. Jackson St.
Seattle, WA 98104
Phone: (206) 398-5000, (800) 201-4900
Fax: 206-398-5499

Sound Transit at Opus 625

625 - 5th Ave. S
Seattle WA 98104-3889
Phone: 206-398-5000, (800)-201-4900
Fax: 206-398-5499

Sound Transit at Fifth and Jackson

315 5th Ave S
Seattle, WA 98104
Phone: 206-398-5000, (800)-201-4900
Fax: 206-398-5499

7.2 BNSF

A. The BNSF railroad is headquartered in Fort Worth Texas, and dispatches trains throughout the country from that location.

BNSF Railway Corporate Headquarters

2650 Lou Menk Drive
Fort Worth, TX 76131-2830

Telephone operator/Directory assistance: 1-800-795-2673

BNSF Resource Operations Communications Center (ROCC): 1-800-832-5452

7.3 AMTRAK (HOLGATE YARD)

A. Sound Transit contracts with Amtrak (The National Railroad Passenger Corporation) for maintenance of locomotives, coaches, and cab cars at the Amtrak Holgate Yard:

187 Holgate St S
Seattle WA, 98134
King County

7.4 TACOMA RAIL

A. Sounder runs on 1.3 miles of track owned by Tacoma Rail, from "TR Junction" to the Tacoma Station. Tacoma Rail is located at:

2601 SR 509 North Frontage Road
Tacoma, WA 98421

Signal Malfunction Notification, available 24 hours

(877) 811-8180

Tower Operations, available 24 hours

Line 1 - (253) 502-8867
Line 2 - (253) 396-3290
Line 3 - (253) 396-3291

Rail Network Operations, available 24 hours

(253) 396-3161
railoperations@cityoftacoma.org
fax (253) 502-8908

7.5 RESOURCE OPERATIONS CONTROL CENTER (ROCC) AND RAILROAD COMMUNICATION

A. The ROCC facility in Fort Worth, TX, (refer to Figure 7-1) is the central location for trains dispatched by BNSF, including Sounder Commuter Rail. The ROCC can be reached by calling 800-832-5452.

B. In the event of an emergency, the train crew will contact the ROCC by radio to notify them of the incident. The ROCC will then contact local emergency responder dispatch centers.

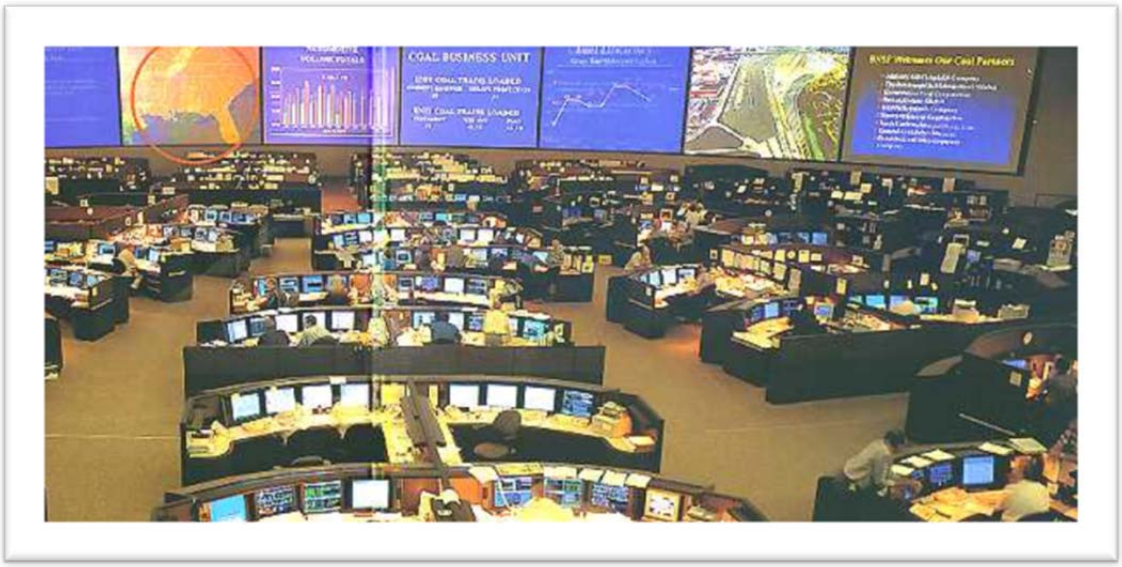
C. The appropriate BNSF Train Dispatcher in Ft. Worth, TX will receive initial emergency communications from the on-board crew members by radio, telephone, or by whatever means available. In the event of a passenger train emergency, the Train Dispatcher will make notification to the Service Interruption Desk as soon as possible. Once notified, the Service Interruption Desk will provide internal and external notifications

D. When applicable, the Control Center must also notify, as soon as practical, any adjacent rail modes of transportation with information on the nature and degree of the emergency

situation and what actions may be required on their part to ensure that their properties do not become involved.

E. The National Communications Center (NCC) (Amtrak Police Desk) may assist the BNSF NOC in notifying appropriate emergency response organizations in the emergency area providing instructions and information on the nature and extent of the emergency and any/all other applicable information that may be necessary or required in order to affect the proper degree of emergency response. The BNSF Resource Operation Call Center maintains a list of emergency response agencies that would be reasonably expected to respond to a railway emergency on BNSF property.

Figure 7-1 Resource Operations Control Center (ROCC), Fort Worth, Texas.



7.5.1 Sounder Duty Officer (SDO)

The SDO is on call 24x7 and is the primary contact at Sound Transit for emergency issues involving the Sounder commuter rail service during an incident. The SDO receives information from BNSF management (or crews) and is responsible for making sure other departments at ST are notified through a "Command Post" email, as well as through direct phone calls to ST Customer Service, Media Relations, senior management and others as needed. The SDO also ensures current information communicated to Station Agents and the Security division, which occupies the ST Dispatch Center at Union Station. The SDO can be reached at 206-689-4922.

7.5.2 Sound Transit Security Dispatch Center

Sound Transit Security Dispatch Center will also notify Sound Transit personnel and may assist the BNSF NOC in notifying appropriate emergency response organizations in the emergency area providing instructions and information on the nature and extent of the emergency and any/all other applicable information that may be necessary or required in order to affect the proper degree of emergency response. The ST Security

Dispatch will be called to report any incident. BNSF employees and officers can communicate with ST Security Dispatch at 206-398-5268, or the emergency hotline at 206-689-3300.

A. Notifications made by Security Dispatch include:

1. Sound Transit Safety –designated on call staff
2. Public Information Officer (PIO)
3. Sound Transit Police
4. Customer Service
5. Station Agents
6. Sounder Duty Officer (if not already aware of emergency)

8. COMMUNICATIONS ON THE ALIGNMENT

There are several communications systems available for Sounder. Radio, emergency call boxes, and public address systems.

8.1 RADIO

BNSF crews in Sounder service communicate using the following radio channels:

Channel	Frequency	Description
North-line		
CH 70	161.160 Mhz	BNSF Seattle Terminal Dispatcher MP 0.0 (Seattle, King St.) – 17.8 (Edmonds)
CH 76	161.250 Mhz	BNSF North Brach Dispatcher MP 17.8 (Edmonds) – MP 1780.9 (Lowell)
South-line		
CH 70	161.160 Mhz	BNSF Seattle Terminal Dispatcher MP 0.0 (Seattle, King Street) – 10.0X (Black River)
CH 87	161.415 Mhz	BNSF Centralia North Dispatcher MP 10.0X (Black River) – MP 40.1X (21 St.) - 24.6 (Black River)
CH 66	161.100 Mhz	BNSF Centralia South Dispatcher MP 24.6 (Black River) – MP 132.5 (Vancouver Jct. North)

8.2 PUBLIC ADDRESS SYSTEM

The on-board Public Address (PA) system is used to make general announcements to passengers

8.3 CELLULAR TELEPHONES

Cellular telephone service is not available in tunnels, but should be available in other areas of the system. Per BNSF rules, train engineers do not have access to cellular telephones while in a moving train cab. They do however have cell phones issued to them and may use them in certain circumstances which include the push-to-talk radio feature. Train conductors do use cellular phones during operations as part of their duties, which include push-to-talk radio and email capabilities. It is expected that railroad responders who report to an incident will have cell phones with them.

8.4 EMERGENCY CALL CENTERS

A. Emergency Call Centers are located on platforms at the South Line Stations. When the button on the Emergency Call Center is pushed, it connects with Sound Transit Security Dispatch in Seattle. When contacted, Security Dispatch will position a camera so that they can view the caller. Sound Transit Security will contact local law enforcement or other emergency responders as necessary.

B. The Emergency Call Center at the Everett Station connects with Everett Station Security, part of the City of Everett.

Figure 8-1 Emergency Call Station at Tacoma Station.

8.5 TRAIN SIGNALS (HAND SIGNALS)

Standardized horn and light signals are used to communicate with people on the railroad. People on the railroad must use correct hand signals as trains will not proceed past someone on the railway or in a tunnel without correct hand (flashlight) signals (as found in section 9.4 below).

8.6 CAMERAS

A. Cameras are located at most Sounder Stations. They are largely monitored by Sound Transit Security Dispatch. Cameras at the Everett Station are monitored by the City of Everett, and cameras in Lakewood are monitored by both Sound Transit Security as well as the City of Lakewood. Depending upon the incident location, the use of cameras along the track way may allow significant improvements to intelligence gathering for a rail event.

B. Onboard the trains are head-end cameras which record out the cab and locomotive windows.

Figure 8-2 Photo of a Camera

8.7 VARIABLE MESSAGE SIGN (VMS)

A. VMS is used at the stations primarily to notify passengers of general train information such as next arriving train. The VMS is also preprogrammed with emergency messages to provide visual instructions in notifying passengers of emergencies. The VMS system has strobe lights attached to the VMS sign body to attract attention to the VMS message. In addition to the prerecorded messages, the Security Dispatch have the ability to type in messages to the VMS system.

B. VMS on board the train cars also allow communications with customers for next station and safety information. Conductors may choose from an array of pre-recorded messages for on-board VMS, but do not have the ability to make unique ad hoc messages as can be viewed at the stations.

Figure 8-3 VMS Located in Sumner Station

8.8 EMERGENCY BUTTON

A. Each coach and cab car is equipped with an emergency button, which any passenger may activate during train operations.

B. The emergency button sends a tone throughout the train when it is activated. It also displays the car number on each car's VMS reader board in the train to notify which car was activated, and on the outside destination sign of every car.

C. Only the Conductor can silence the alert. At an incident scene, other personnel with the proper key can also silence the alert.

8.9 INCIDENTS INVOLVING SOUNDER TRAINS

A. Call the BNSF ROCC at 800 832-5452 to ensure rail traffic has stopped.

B. Locate the Sounder Conductor. The Conductor is the primary contact for First Responders during an incident.

C. The Engineer will remain inside the locomotive as long as it is safe to do so in order to establish and maintain communications with ROCC and to maintain train systems. The Engineer is NOT the primary contact for First Responders unless the Conductor is injured and unable to fulfill his/her duties, but will be in contact with the Conductor by radio.

8.9.1 Other Considerations for Incidents Involving Rail Vehicles

A. Some incidents will occur on or otherwise directly involve transit equipment. Examples include:

1. Collisions between Rail Vehicles and motor vehicles or pedestrians
2. Fire on or in transit vehicles
3. Release of hazardous materials or WMD agents in rail vehicles

B. If the incident involves rail equipment, it is likely the rail agency will already be aware of the event from its employees. Fire Department notification will likely come through the ROCC or some other component of Sound Transit or BNSF. There will likely be parallel notifications from rail passengers and witnesses with cell phones. The purpose of commuter rail is to reliably transport many people safely. Due to the nature of commuter rail with heavy train loads, there is potential for a large number of passengers which increases the likelihood any major incident will become an MCI.

C. The size and speed of rail vehicles increases the likelihood that collisions with other vehicles will involve serious injuries and potential need for extrication.

D. Rail systems and vehicles are high value targets for terrorist events.

E. Any incident on rail property or equipment should raise the index of suspicion for an intentional event.

F. NOTE: Incident involving a collision with a Rail Vehicle shall be dispatched as a Heavy Rescue Response.

G. Basic measures for hazard control must be undertaken to ensure the safety of responders managing incidents that affect the right of way. These include:

1. Establish contact with train Conductor
2. Control Rail Traffic
3. Establish a Train Watch
4. Flag the Train

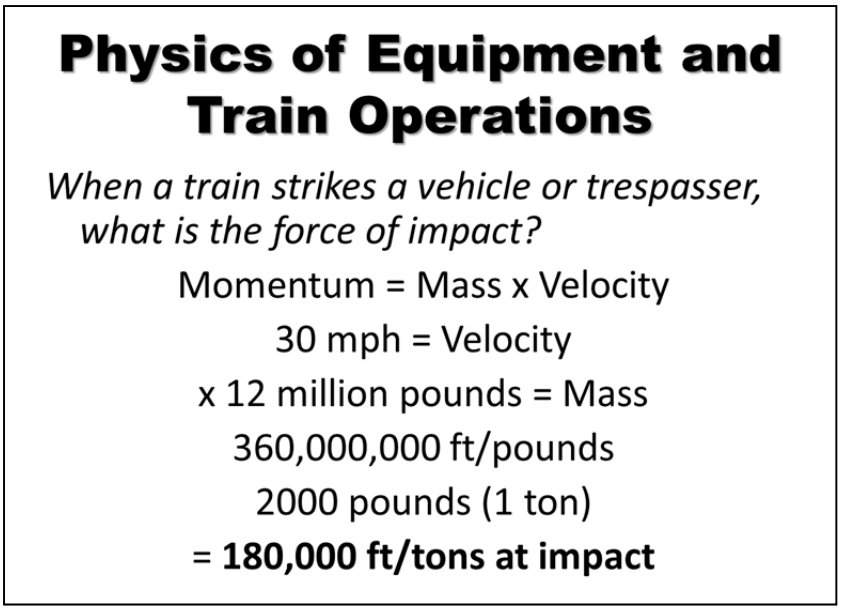
H. If the incident involves rail vehicles, additional measures need to be taken to deal the challenges specific to the railroad.

8.9.2 Securing the Train

It is always best to use trained Transit System personnel to operate any component of the train. However, there are some steps Fire Department members can take if it is necessary to secure the train without supervision of a trained operator.

EMERGENCY BRAKE - Located in the center of the console in the operators cab (pictured below), the red "Emergency Brake" button can be depressed to secure the vehicle against movement. The master controller located to the left of the console can be moved all the way back to fully engage the brakes.

DOOR INTERLOCK - There is an interlock between the doors and propulsion controls preventing the operator from moving the train if one or more doors are not completely closed. While this can be overridden by the operator, holding a car door open will prevent unintentional movement of the train under most circumstances.



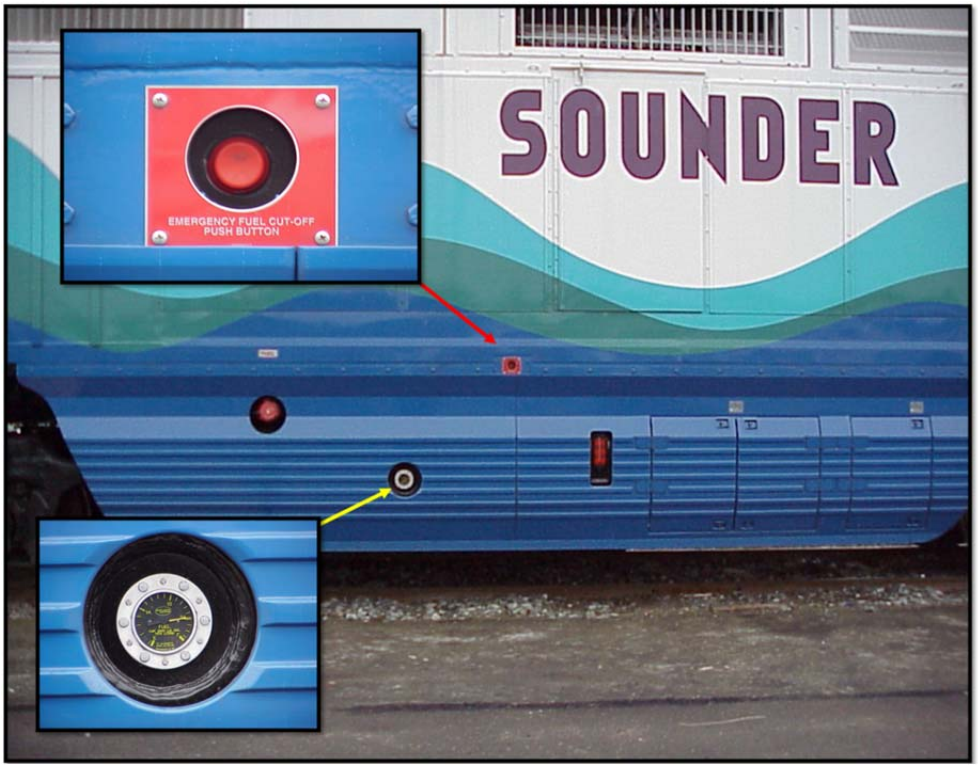
8.10 FUEL DISCONNECT

8.10.1 Emergency Fuel Cutoff

A. The red button is the emergency fuel cut off. When activated, it will stop the flow of fuel to the locomotive. From a distance, the button may be activated from a stream of water from a fire hose.

B. Below that is the Fuel Indicator and capacity gauge. This indicates the fuel level whether or not the engine is running power from the train which also eliminates the use of climate control systems on the vehicle.

Figure 8-4 Location of Emergency Fuel Disconnect and Fuel Indicator Capacity Gauge



9. SAFETY ON THE RIGHT OF WAY (ROW)

A. Expect a train on any track at any time in either direction. Emergency Vehicles do not automatically have the right of way and are not immune to being struck by rail vehicles.

B. When working on the ROW always:

1. Establish contact with Host Railroad by calling the number listed on the Signal Bungalow. Identify your location by the Milepost and DOT crossing number listed on the Signal Bungalow.
2. Do not cross the ROW directly behind any rail vehicle or other areas where visibility is limited.
3. Send personnel two miles in each direction to flag "Stop" to any oncoming trains.
4. Post a train watch to alert workers on the ROW if a train should approach the work site.
5. When crossing tracks – Look Listen and Live! – Roll down apparatus window, turn off siren.
6. Watch your step – NEVER STEP ON RAILS OR IN SWITCHES! Ties may be slippery and gravel ballast offers poor footing

C. Figure 9-1 illustrates a Signal Bungalow with name of Host Railroad, emergency phone number, railroad milepost number, and DOT location number. The indicator light indicates that the signal bungalow is operating under utility power.

Figure 9-1 Signal Bungalow

9.1 GRADE CROSSING

A. Much of the rail alignment provides for track at street level ("at grade") that intersects various streets and arterials. Commuter and passenger trains travel at up to 79 mph. This creates a very real potential for pedestrians, passenger vehicles and fire apparatus colliding with a train. Trains are much heavier than a typical car or truck, which means trains take longer to stop and generate more force on impact than a typical passenger car or truck. A trains' large size may give it the appearance of moving slower than it actually is, making it difficult to judge closing speeds. Modern tracks travel on extruded rail, which creates a smoother and quieter ride than old style welded rail. It also means that modern trains do not create the "clickety clack" noise that many people still expect to hear when trains approach. Modern trains are quiet, giving little audible warning of their approach. As with any rail system, safety depends on always following one simple rule:

ANY TIME IS TRAIN TIME!

Expect a train on any track in either direction at any time!

B. The zone where train operations connect with the rest of the world is called the "Right of Way" (ROW). The ROW is the track and a parallel buffer zone extending 25' from the rail. Notify the Host Railroad any time you are working in this area.

C. In an incident, especially a derailment, the 25 foot area within the Right of Way may be impacted.

Figure 9-2 Right of Way and Train Dynamic Envelope.

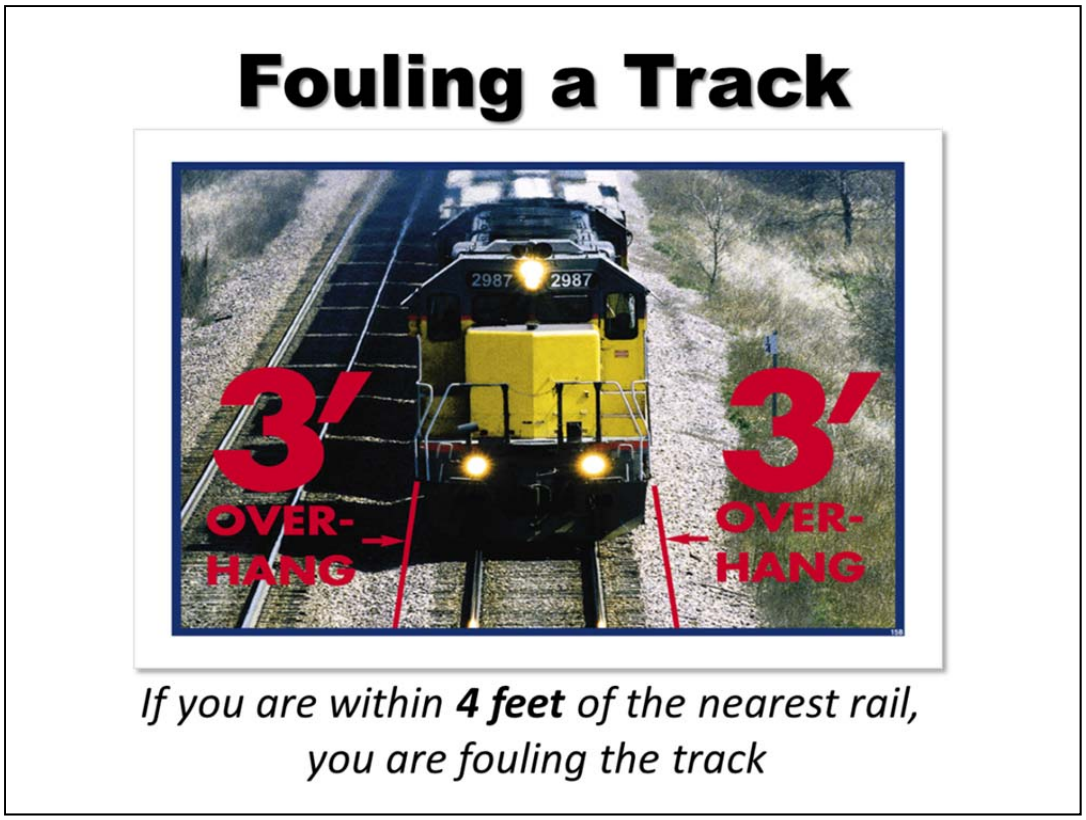
A. The Train Dynamic Envelope is the space taken up by a moving train. This includes the area 4 feet from each rail. Trains typically overhang the track by 3 feet; loose straps on rail cars or other material can widen the danger area. If you are within 4 feet of a rail, this is called "Fouling a Track."

B. Staying clear of the Right of Way eliminates any hazard from rail traffic.

C. Locations where the public, pedestrians and motor vehicle traffic intersect or occupy the right of way have an increased potential for collision with rail vehicles.

D. Right of Way safety is completely dependent on clear communication to control train movement. Controlling traffic and managing the space where the path of trains, pedestrians and vehicles intersect and overlap is a significant challenge. Sound Transit uses conventional rail signals for controlling rail and other related traffic.

Figure 9-3 Hazards Within the Train Dynamic Envelope



9.2 GRADE CROSSING SIGNALS

A. At any railroad crossing:

1. Look, Listen, and Live when crossing.
2. Never go around gates that are down.
3. Be aware for more than one train in different directions.

Figure 9 -4 Railroad Crossing Arm and "Crossbuck" Signage

9.3 LIGHTED TRAFFIC SIGNALS

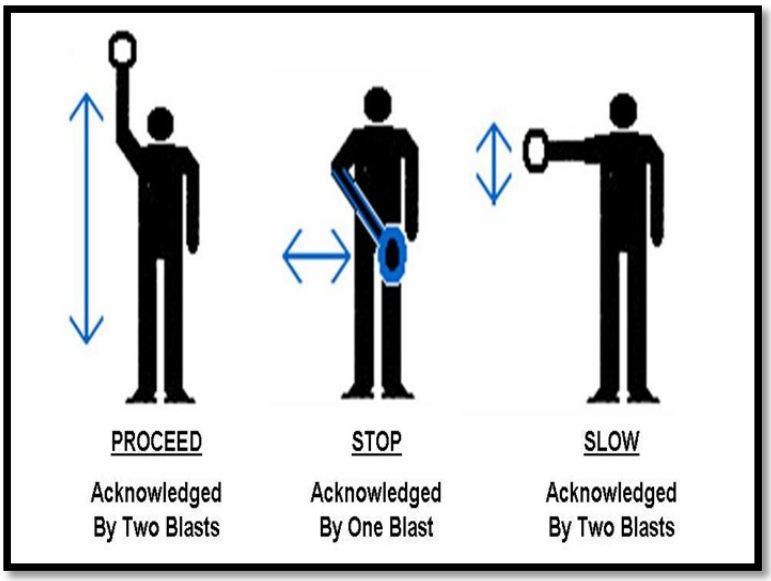
Roadway lighting signals at crossings are integrated with the railroad signaling system. Although on roadways emergency vehicles may move "against" signals when operating under lights and sirens, an emergency vehicle should always follow the traffic signals at a railroad crossing. Since a train may take more than a mile to come to a stop with an emergency brake application, the train will not be able to avoid hitting an emergency vehicle moving through the crossing against the signal.

9.4 HAND SIGNALS

A. Hand signals may be used to communicate some simple commands to the train operator;

B. The hand signals shown in Figure 9 - 5 should be made facing the operator of the train using a light or some other high contrast method.

Figure 9 -5 Hand Signals



9.5 IDENTIFYING YOUR LOCATION ON THE ALIGNMENT

Any location on the right of way (ROW) is identified by its milepost marker location indicated on the Signal Bungalow. Emergency Responders also have been provided with the Sounder Linear Referencing System part of the Passenger Train Emergency Preparedness Plan, and can look up the mile post markers within their jurisdiction using this system.

9.6 TRACK TERMINOLOGY

A. Sounder operates largely on rail where there are two tracks, 'Main 1' and 'Main 2', running parallel to each other. Often track 2 is used for northbound trains and 1 for southbound. Note that this is NOT always the case and trains running the opposite direction occur frequently.

B. There are areas, especially on the north line, where trains run in both directions on Single Track.

C. Parallel Operations exist when a track owned by one railroad company runs near a track owned by another railroad company. Parallel operations occur with Union Pacific Railroad in South Seattle and Tukwila, and with Tacoma Rail between Portland Avenue and the Tacoma Dome Station

   1. The parallel operations are:

      a. Joint trackage with Union Pacific RR between MP 3.0X and MP 10.0X of the Seattle Subdivision.

      b. The Tacoma Railway segment between TR Junction (MP 0.7) and Tacoma Dome Station (MP 1.99). In both of these cases, BNSF is the dispatcher of the joint trackage.

   2. Sound Transit Link light rail crosses over the top of BNSF near Boeing Access Road (MP 6.5X) on an aerial structure. There is no planned interface (station) that would connect the two services at this location. Emergency responders who may respond to this location should be familiar with emergency procedures for the Link Light Rail System.

D. If an incident occurs in an area of parallel operations, the Train Dispatcher will ascertain whether any other railroads are blocked, and if any other adjacent railroads could be affected. The area of the emergency will be secured from other train movements that could cause unnecessary interference or a hazard.

10. EMERGENCY RESPONDER ACTIONS

10.1 INCIDENT MANAGEMENT

A. Incidents related to rail systems can range from simple EMS responses for ill or injured passengers to multi-car derailments with mass casualties. For discussion purposes these incidents can be grouped into three categories based on the hazards presented to responders:

1. Incidents that are not caused by, or affected by, the rail system - such as medical emergencies that occur on transit vehicles or property.

2. Incidents that affect the rail system, but do not directly involve the equipment or infrastructure; these might include suppression operations adjacent to rail property.

3. Incidents that directly involve rail equipment or property.

10.2 MEDICAL EMERGENCIES ON RAIL EQUIPMENT OR PROPERTY

A. As with other means of public transportation, the most likely need for emergency personnel at to an incident involving a rail vehicle will be for medical emergency which is independent of the vehicle or the transit system.

B. If reported by transit personnel, a rail employee will typically stay with the patient until arrival of Fire Department resources. Depending on the condition of the patient, and type of emergency, the train will stop at the most appropriate station. The patient may be moved to the platform to wait for arrival of emergency medical care. This will allow the train to leave and continue the route.

C. In any case, there should be transit employees such as a Station Agent or Security personnel present in this situation to assist with any issues related to the system or vehicles.

10.2.1 Emergencies on Rail Equipment or Rail Property

A. Incidents that do not directly involve Sounder vehicles, or rail property but potentially impact the right of way or rail service:

B. There may be cases where the incident impinges on the rail right of way, but does not directly involve rail equipment. These may include fire suppression operations, motor vehicle accidents and other medical emergencies where fire department equipment or operations directly impact the rail right of way.

C. Typically any incident that requires operations within 25’ of the rail line is considered as affecting rail operation. In these cases, the operators of the rail system may not be aware of the emergency or its effect on the system.

D. Emergency notification for any Sounder service area should go to the BNSF ROCC (800-832-5452). The following further actions should be taken or considered for incidents that may potentially interfere with rail traffic or foul the right of way:

1. Notify the Host Railroad

2. BNSF (as host would already be notified through ROCC): (800) 832-5452
3. Tacoma Rail: (253)396-3161
4. Sound Transit: (206) 398-5268

E. Give an accurate location and nature of the incident as well as how it might affect rail traffic (hose lay across the tracks etc.). Ensure the dispatchers confirm with you that Rail Dispatch has been notified that Fire Department personnel are operating on or around the rail tracks. (Note: Avoid laying hose across tracks if possible; an oncoming train will cut the hose. Rail personnel can be sent out to assist with pulling hose under the tracks if necessary.)

F. Flag Rail Traffic; as with any rail incident, the location must be flagged to stop rail traffic well in advance of the incident site (Typically at least 2 miles in each direction) until positive communication with the transit system indicates traffic is secured. See Figure 9-5, Hand Signals.

G. Establish a Train Watch and Evacuation Signal; Rail Vehicles are quiet. The noise and other distractions of mitigating the incident may prevent the train from being heard as it approaches. If responders are on the track or right of way a member should be stationed to watch for an oncoming train and signal those members to evacuate the hazard area.

10.3 EXTRICATION OPERATIONS

A. As with any vehicle extrication operation using existing openings or enlarging them to gain access to the occupants and effect their removal should be a priority. Each Sounder coach and cab car has eight doors (four doorways) and two end doors that can be taken advantage of for patient access and removal.

B. Train windows are made of Lexan and cannot be broken. Rail vehicles are constructed to remain intact and protect the occupants in the event of a collision. This construction and the multiple access points will typically eliminate the need for actual extrication tactics. Also, the construction of the rail vehicles makes standard extrication techniques ineffective. As described earlier, emergency exit windows may be removed to assist in evacuation as necessary.

10.4 DERAILMENT

A. Accidents involve another train, or non-train (non-train events block train movement). This might include:

1. Physical debris, as well as smoke;
2. Terrorist events such as a bomb threat;
3. Full scale terrorism acts with CBRNE (i.e. an MCI- Haz-Mat response)

B. Rescue Train operations may vary based upon the type of need, scale of incident and scope of problems. In most cases the RT will be used to remove passengers stranded on the elevated section or in a tunnel by a train failure.

10.5 LIFTING THE RAIL VEHICLE

While it can be performed with typical Fire Department equipment, lifting the Train Vehicle with Air Bags or Jacks more than a few inches can seriously damage the cars.

IMPORTANT - ANY OPERATION WHICH REQUIRES LIFTING A RAIL VEHICLE REQUIRES A HEAVY RESCUE RESPONSE

Railroads use particular equipment specifically designed to move and/or re-rail rail vehicles should they become derailed. If it is necessary to lift the car - air bags can be used under any flat portion of the car, which is essentially the entire area between the wheel sets. The structural elements can be identified by looking for the rivet lines on the sheeting. . If it is necessary to lift the car, there are lifting pads on all four corners of the car for lifting purposes. These lifting pads can accommodate jacks to properly and evenly lift the car. These pads will also accommodate special cable hooks from a crane providing a spreader bar is used to prevent the cables from contacting the side of the car. Only professional re-railing companies should be used to attempt to re-rail a car to prevent further damage. Either the “Commuter Rail Transportation Superintendent” or the “Commuter Rail Mechanical Superintendent” should be present during any re-railing operation.

11. RESCUE TRAIN

A. Rescue train is a regular Sounder train, specially designated as a 'rescue train' (RT) for purpose of access or egress from a remote location such as a beachfront, tunnel or elevated rail section.

B. A rescue train can be used in a variety of ways, including to:

1. Push or pull an immobile train with or without passengers to a designated unloading area, (normally a station or at grade location);
2. Transfer passengers from an immobile train to the RT for transportation to a designated unloading area;
3. Transfer rail employees and equipment to an immobile train or remote location;
4. Transfer Emergency responders with equipment to an immobile train or remote location (e.g. debris fire on the train way in a tunnel);
5. Regular trains can stop for several reasons that create a possible need for a rescue trains, most of these will NOT require emergency responders;
6. Power failure, i.e. mechanical failure with resultant loss of power
7. Engine failure. Wheels, controls, etc.
8. Safety system failure which causes train to stop (e.g. door safety switch);
9. Track related problems which prevents movement of the train;
10. Operator is incapacitated and 'dead man' system stops train. (EMS response);
11. Fire which either disables systems or causes smoke and resultant evacuation of train, i.e. a Fire Response;
12. Provide shelter during protracted operations;
13. A Rescue Train can be requested through Rail Operations (the Conductor, or more senior rail personnel once they arrive at the scene and report to Incident Command);

11.1 RESCUE TRAIN RESPONSIBILITIES

The following checklists, which describe individual responsibilities relative to Rescue Train Operations, are provided for Fire Department reference:

11.2 INCIDENT COMMAND

Rescue Train Checklist: Incident Command Responsibilities	
	Determine need for Rescue Train as part of strategy/tactics.
	Designate RT loading and unloading areas and assign units to these areas.
	Assign an individual to be RT group at appropriate IC level.
	Request Trains through Sounder Duty Officer (SDO) Complete directly through SDO or Contact Battalion Chief at SDO
	Monitor rescue train group status throughout incident via appropriate IC level
	Establish demobilization plan for rescue train group through planning or other appropriate IC level.

11.3 RESCUE TRAIN UNIT LEADER

Rescue Train Checklist: Rescue Train Unit Leader Responsibilities **Emergency Responder ON the Rescue Train**	
	Ensure that train is correctly identified (the dispatcher uses a train # for each train)
	Make sure that non-essential people are kept off of the train
	Coordinate directly with train operator and rides train with train operator at all times train is in motion until incident is terminated
	Accountable for all personnel on the train
	Train operator follows directives from the responding Fire Department (Fire directives to Link Operator cannot violate safety or Link operational procedures)
	Ensure that train is secured prior to loading and/or unloading (train is in neutral power position and brakes are set)
	If necessary for passenger safety, the passengers and equipment should be secured prior to the train starting to move.

11.4 GROUP SUPERVISOR RESPONSIBILITIES

	Rescue Train Checklist: Group Supervisor Responsibilities
	Establish group coordinating location (normally at loading area).
	Review tactical plans for rescue trains to ensure that trains will be available.
	Request and confirm a rescue group radio channel
	Make assignments: Assign loading and unloading supervisors Assign on board train coordinators (at least 1 per train)
	Coordinate rescue trains with appropriate IC level
	Coordinate rescue trains via radio
	Ensure rescue trains follow established rescue train procedures
	Dispatch trains to incident as necessary and available
	Coordinate safety and security of rescue train loading and unloading areas
	Ensure that all operations are being completed safely
	Be aware that Sounder needs to return to service as soon as possible
	Plan for the demobilization of the rescue train
	Document all activities using the National Incident Management System (NIMS)

11.5 LOADING AREA

Note: loading and unloading areas may be the same site.

A. This location should be 'at grade' if possible and close to the incident. This allows easier loading. If the loading area is at an elevated structure, consider asking for additional companies to move equipment up to the train.

B. Rapid loading and sending the train should be done as quickly as possible without compromising safety.

C. The Loading area functions to place equipment and personnel on board the RT.

D. Parking for apparatus can be a significant concern and taking over a portion of the street is likely. Contact law enforcement for traffic control if needed.

E. Trains should be loaded based upon need at the incident site. Normally a recon team will be at the incident and identify most critical needs. This may range from firefighting, heavy rescue, and emergency medical.

F. Support equipment should be loaded so it will not impede deployment at the scene.

G. Paramedics may ride the train to incident site and they will be responsible for their equipment and supplies. A unit or more should be assigned to assist the Medics with their gear.

H. Some medical supplies may stay on the RT throughout the event for patient use when the train carries patients away from the incident.

I. Staffing the rescue train will include a designated RT individual; the radio designator for this person will be the same as the number of the rescue train, e.g. Rescue Train 9. The individual will normally stay with the train from loading to unloading area. (See position description)

11.5.1 Incident Site and Patient /Equipment Holding Areas

A. The PATIENT holding area is a designated location near the incident site. This may be the same as a triage +/ treatment area, however, the holding area is designated to place people and equipment away from the incident site and ready for quick loading on the rescue train.

B. Holding location(s) should be designated at or near the incident site to ensure unimpeded deployment of members from the rescue train. This would normally be beyond the incident site to allow room for a second rescue train to stop close to the incident. This area should be 'upwind' of the incident if smoke or gases are present. If in a tunnel, the Rescue Train should not block a cross passage as this makes cross passage use more difficult.

C. Holding areas for passengers and equipment should be designated and someone placed in charge of the passengers. If there are patients, the areas should be

coordinated by patient status (red, yellow, green). Note that the patient holding area should be laid out so red patients can be unloaded first at the unloading area.

D. People and equipment should not be placed on, or adjacent to, the tracks that may be used by the RT due to risk of and trains through the area.

E. Patients loaded on the RT should be placed to prevent possible further injury from train movement.

F. Moving the rescue train away from the holding area is a dangerous portion of the RT operation. The incident site RT person should closely coordinate with the RT to ensure the no one may be hurt by the moving train. Appropriate train signals should be used.

G. The RT Group Supervisor should be notified of any train movement at the incident site and when the trains arrive and depart the incident scene.

11.5.2 Unloading Areas

A. Normally RT will transport patients to an unloading area that is pre-designated and at grade for easy removal of patients, emergency responders and equipment. The location will be selected based upon proximity to the incident site and viability of the required transportation corridors.

B. Emergency responders will be sent to this area prior to the train arriving whenever possible and will establish a RT Unloading Coordinator.

C. It is likely that the Medical Group Supervisor will be stationed at this location.

D. Consider requesting buses for shelter and transportation.

11.5.3 Unloading Coordination

A. An Unloading Coordinator should be assigned the following responsibilities:

1. Coordination with RT Group Supervisor AND Medical Group Supervisor.
2. Secure the unloading scene (vehicles, pedestrians, etc.) Use of law enforcement is encouraged for this purpose.
3. Coordinate with Medical Group Supervisor who will be responsible for patient movement after unloading.
4. Establish and maintain transportation corridors for EMS if this has not been done by Transportation Supervisor.
5. Manage resources assigned to unloading area.
6. Ensure safety protocols are followed.
7. Manage rescue trains that have completed their assignment (typically this would be to send the train to a nearby waiting area).
8. Coordinate the demobilization of the area.

(note: the loading and unloading areas may be the same).

11.6 RESPONDING FD RESCUE TRAIN LIAISON

A. Meet train Conductor

B. Confirm train number (Use existing train number – FD will not change number)

C. Confirm location of incident

D. Provide updates by radio to IC/ BC

E. Maintain control of FD units and equip on train

F. Direct Train crew where to stop relative to incident

G. Assist Train crew in controlling passengers walking on railway

H. Provide briefings to FD and other members on train

I. Credential non FD members on train (requires IC approval)

J. Document damage to train

K. Ensure all FD equipment is off train at end

L. Return train to Train Crew control at end

11.7 RESCUE TRAIN DEMOBILIZATION:

A. Rescue Train will be used to return rail staff, emergency responders (and equipment) to apparatus as determined by IC.

B. RT Group Supervisor should coordinate with Planning (or IC) for Demobilization planning.

C. Damage to the RT should be reported Amtrak

D. Rescue train to return to Holgate Yard or where the SDO specifies.

12. EQUIPMENT CHECKLIST

12.1 ENGINES AND TRUCKS

Engines and Trucks Should Bring the Following Items on The Train:

- ❑ Passport
- ❑ Radios
- ❑ PPE
- ❑ SCBA with spare bottles (2 each for tunnels)
- ❑ Dry Chem Extinguisher(s)
- ❑ Baby Ladders
- ❑ Battle lanterns
- ❑ Aid, O2, life pak, extra BLS supplies
- ❑ 2 ½" to 1 ¾" wye appliance

12.2 ENGINE COMPANY

(min inventory plus)

(Hose may not be required – confirm with IC)

- ❑ 2 ½" gated wye
- ❑ 400' 2 ½"
- ❑ 600' 1 ¾"
- ❑ 2 ½" TFT
- ❑ 2 ½" smooth bore nozzle
- ❑ 1 ¾" TFT
- ❑ 1 ¾" smooth bore nozzle

12.3 LADDER COMPANY

(min inventory plus)

- ❑ RAK
- ❑ Air Monitor(s)
- ❑ PPV Fan
- ❑ TIC
- ❑ Rubbish hook
- ❑ Pump Can
- ❑ Rescue Saw
- ❑ Roof Ladder
- ❑ Set of Irons
- ❑ Lights
- ❑ Utility Rope
- ❑ Wheel kit for stokes
- ❑ Aid kit
- ❑ Long Bar(s)
- ❑ Rabbit tool
- ❑ Homatro power plant
- ❑ Holmatro hoses
- ❑ Cutter
- ❑ Spreader
- ❑ Ram
- ❑ Combi-Tool
- ❑ Cribbing
- ❑ Generator
- ❑ Sawzall (w/extra blades)
- ❑ Stokes Basket
- ❑ Vent Kit

13. RAIL INCIDENT CHECKLIST

13.1 SIZE-UP THE INCIDENT

Sounder Incident Checklist	
	Confirm the location of the Incident • Mile Post Marker (MPM) • Intersection • Nearest Signal Bungalow
	Is the train stable? Do you have access to it?
	Are other trains stopped in both directions?
	Are trucks/cars stopped?
	What is the report from the Train Conductor?
	Estimate the number of patients given the situation Patient Status – Red, Yellow or Green? Extrication needed?
	What kind of exposures are there?
	Is crowd control needed?
	Is there nearby water supply? Where is it?
	Is there a threat of weapons of mass destruction or hazardous materials? Secondary devices needed?
	Strategy/Tactics
	What are the organizational structures (branches/divisions)
	Involvement from other groups? • Medical/Rescue • Law Enforcement • Traffic, crime, crowd • Sound Transit • BNSF • Amtrak • Tacoma Rail
	What kinds of resources are needed? • FD Staffing • Heavy Rescue • MCI Van • Rescue Train(s)

Sounder Incident Checklist	
	What zones should be set up? • Triage funnel point • Patient Areas (red, yellow, green patients) • Transportation Corridor • Fire Dept. Rig Parking • EMS Access, standby and loading • Funnel point • IC Location • Branch, Division locations • Rail Liaison

13.2 ACTIONS

Incident Action Checklist	
	Make Assignments
	Update IC and Location with Status Report
	Call for Additional Resources • Heavy Rescue • Staffing •
	Confirm BNSF Dispatcher is notified • Establish/Announce Zones • Stop Traffic (Car and Train) •
	Stabilize/Access Train?
	Shoring for Train if unstable?
	Will you have to use forcible entry?
	Suppress fire in train/car
	Secondary water supply
	Rescue • What equipment do you need?
	Patient Rapid Triage – establish #s
	Patient Status red/yellow/green?
	Patient Rescue/Extrication to funnel point
	Crowd control –Use Rail/Law Enforcement • Take note of passengers vs. spectators
	PD to maintain perimeter

13.3 SOUNDER FACILITIES

North Line Stations	Station Address
Everett Station	3201 Smith Ave., Everett
Mukilteo Station	920 First St., Mukilteo
Edmonds Station	210 Railroad Ave., Edmonds
King Street Station	301 S. Jackson St., Seattle (or S. Weller St. & Fourth Ave. S.)
South Line Stations	**Station Address**
King Street Station	301 S. Jackson St., Seattle (or S. Weller St. & Fourth Ave. S.)
Tukwila Station	7301 Longacres Way, Tukwila
Kent Station	301 Railroad Ave N., Kent
Auburn Station	23 A St. SW., Auburn
Sumner Station	810 Maple St., Sumner
Puyallup Station	131 W. Main St., Puyallup
Tacoma Dome Station	424 E. 25th St., Tacoma
South Tacoma Station	5650 S Washington St., Tacoma
Lakewood Station	11424 Pacific Highway SW, Lakewood
Lakewood Yard Office	9217 Lakeview Ave. SW, Lakewood

14. SUPPORT AND CONTROL FACILITIES

14.1 LAKEWOOD LAYOVER YARD

The permanent layover yard in Lakewood, serving all Sounder south-line trains, I slocated adjacent to existing tracks between Steilacoom Blvd. SW and 10th Street SW in Lakewood, WA. Prior to October 2012, Sounder used the temporary "L" Street Yard located at 1202 East 25th Street in Tacoma, which is still available for equipment that may need temporary storage there. The Lakewood Layover Yard currently has a capacity for six 7-car train-sets and will be expanded for a seventh, before 2016. An operations building (see "13.3 Facilities" above) has been leased for both train crews and the crews performing overnight light cleaning and servicing (Amtrak and their subcontractor, Drummac) on site.

15. QUICK REFERENCES

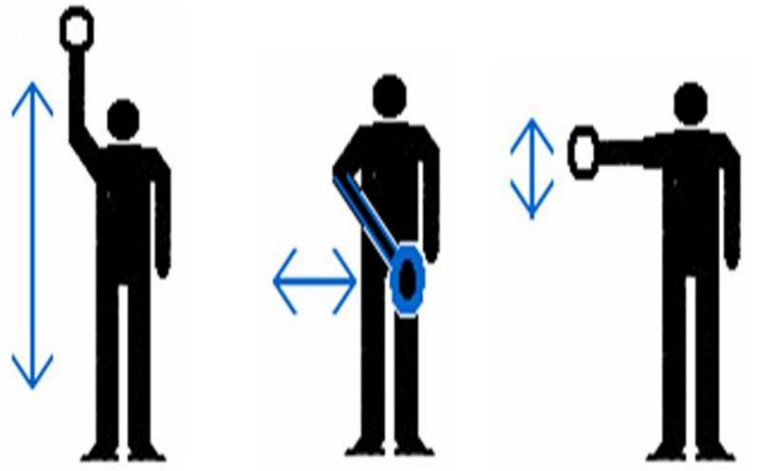
15.1 SOUNDER INCIDENT CHECKLIST

A.	**In case of Sounder Incident, follow these steps:**
B.	Size up incident: • Unit signature • Location • Scene Description • Actions • Establish Command (Command Post?) • Staging/Base Locations
C.	Number of Patients? What condition are they in?
D.	Make contact with Conductor, and find out if: • Rail Traffic stopped in both directions? • Exchange of information? • Train Stabilized? • Fuel Spills or leaks?
E.	Is the train energized? • HEP on? • Is the train de-railed?
F.	Establish “Hot Zone”
G.	What additional resources are needed? • Heavy Rescue Response MCI, PD, PIO, Sound Transit Personnel, Host Railroad personnel • BNSF ROCC 800 832-5452 • Sound Transit Security Dispatch 206 398-5268

15.2 TRAIN MOVEMENT

- Expect a train on any track at any time in either direction.
- Emergency Vehicles do not automatically have the right of way and are not immune to being struck by rail vehicles.
- When working on the ROW always establish contact with the Host Railroad listed on the nearest Signal Bungalow.
- When responding to an Incident always establish initial contact with the Train Conductor.
- Never stand at the end of a train car. It may be pushed or pulled suddenly.
- Never touch wheels or other undercarriage parts.
- Never walk between train cars.
- Secure equipment when on a moving train (rescue train).

15.3 HAND SIGNALS



Appendix A - Glossary of Terms

The following provides definitions of the unique terms used in regards to the Sounder Commuter rail system.

Black Rail – A black rail condition may occur in the early mornings when ice or dew forms on the rail head (top of the rail). Black rail causes a spin-slide condition which will increase stopping distances.

Block – A length of track.

- Between consecutive block signals
- Between a block signal and the end of block signal limits.
- In ATC limits, the use of which is governed by cab signals or block signals.

Block Signal – A fixed signal at the entrance of a block that governs trains entering and using that block.

Brake System – A primary safety system designated to either reduce the speed of trains or to bring them to a complete stop. The following describes braking systems:

Dynamic – One of the two braking systems where traction motors driving the wheels are used as generators, to provide a controlled braking.

Friction – Applies a stopping force through disc brakes or tread brakes.

Brake Application – Application of a specific combination of braking systems provided.

Emergency – An irreversible slowing and stopping of the vehicle, using only the friction brake, activated by pulling the Emergency Brake handle on any car or initiating the emergency brake application from the Engineer's brake controller. Dynamic brake and antilock systems are not used during emergency.

Maximum – The combination of dynamic and friction braking in conjunction with sanding the rails.

Service – A combination of the dynamic and friction brake used by the engineer to slow and stop the train under normal operating conditions.

Bus Bridge – ST operational decision to use bus transport of rail passengers around a full out-of-service section of track (NB and SB O/S), thus continuing revenue service.

Closed Circuit Television System (CCTV) – Color CCTV along the alignment providing a means to verify normal and emergency conditions and provide increased surveillance capability. Select cameras are equipped with pan, tilt, and zoom features. Images can be viewed on monitors at LCC, BHT Fire Control Center, and EMPs.

Command Post (CP) – Location at the scene of an emergency where the incident commander is located and where command coordination, control, and communications are centralized.

Communications – Radio, telephone, and messenger services throughout the system

Conductor - Railroad employee in charge of train

Consist – Two or more rail vehicles together that operate as a single unit; Sounder trains typically do not exceed 7 car consists, but may be up to 10 cars.

Coupler – A device for making mechanical connections between cars and/or other rail equipment.

Crew Key – A crew key is a specific key that allows operators and maintenance personnel access/egress to the passenger compartment, cabs, and some of the cabinets inside the car.

Crossover – Two track switches connected to form a continuous passage between two parallel tracks. The crossover provides the ability to single track trains and isolate a portion of a track (see Interlocking).

Customer Support Process Center (CSPC) - A location at or near the incident site where customers and employees can be comfortably accommodated

Derailment – Any wheel of any piece of rail equipment which leaves the rail and touches the ground

Dynamic Envelope — The space within four feet of the nearest rail which may be occupied by a moving train.

Emergency Situation - An unexpected event related to the operation of commuter train service involving a significant threat to the safety or health of one or more persons and requiring immediate action, including:

- Derailment.
- Fatality at a grade crossing.
- Passenger or employee fatality, or a serious illness or injury to one or more passengers or crew members requiring hospitalization.
- Evacuation of a passenger train.
- Security situation

Emergency Medical Service (EMS) - Any agency which provides medical services in emergency situations, including paramedic, emergency medical technician, nursing, and/or physician services.

Emergency Preparedness Plan - A document which focuses on preparedness and response to train emergencies.

Emergency Responder - A member of a police, fire, rescue or emergency medical service or other public safety agency providing and/or coordinating emergency services.

Employee Assistance Program (EAP) - Provides guidance, support, and resources to employees and family members for resolution of emotional, financial, legal, family, marital, and substance abuse problems. In a major occurrence, EAP also provides assistance, support, and resources to passengers and railroad employees.

Federal Railway Administration (FRA) – The FRA regulates all tracks on the general railroad system within the United States. The FRA has control over Light Rail systems where tracks are in common with rail systems connected to the nationwide railway system.

Federal Transit Administration (FTA) – Funds and regulates mass transit within the United States.

Foul of Track — within four feet of the nearest rail of a track.

Headway – The interval of time between the arrivals of consecutive trains at a platform in a station.

Hi-Rail Equipment – Any vehicle equipped with flanged wheels and rubber tires that allows the equipment to be operated on tracks or a roadway.

Host Railroad - The operating railroad that owns the property upon which train service is conducted. The host railroad may provide control services and related functions to ensure the safe and efficient movement of passenger and freight trains. The railroad may provide passenger train service using its own equipment and/or it may allow other entities' trains to provide passenger service on its property.

Linear Referencing System (LRS) - A diagram of the rail corridor useful for access information from an emergency responder's perspective. It depicts the roadways and structures that intersect the rail line in the context of the rail mileposts and track configurations

Main Track — A track extending through yards and between stations that must not be occupied without authority or protection. Main tracks are generally designated by direction (i.e., North, South), although trains may move in either direction on each track.

Mile Post Marker (MPM) **–** The mile post marker system is the primary method of locating trains on the right of way.

Multiple Main Tracks—Two or more main tracks

National Communications Center (NCC) - Amtrak Police Department operated Control Center located in Philadelphia, PA. The NCC operates the same as all other centralized emergency dispatch centers. As an emergency dispatch center, the NCC receives emergency calls from several sources. The NCC is responsible for ensuring initial or follow-up notification of local emergency response agencies anywhere in the country and ensures adequate Amtrak Police support if necessary. (1-800-832.5452)

National Transportation Safety Board (NTSB) - An independent federal agency that reports directly to Congress. It investigates and analyzes major transportation accidents (railroad, aviation, highway, marine, and pipeline) and prepares a public report on its findings, conclusions and recommendations.

Network Operations Center (NOC) - Located in Fort Worth, Texas, the NOC is BNSF's major control center and is the corporate focus of emergency responses. Satellite control centers are located at Spring TX, San Bernardino CA, and Kansas City KS. (Fort Worth TX, 1-800-832-5452)

Parallel Tracks - Adjacent tracks owned by different Host Railroads.

Resource Operations Communications Center (ROCC) - Located in Fort Worth, Texas, the ROCC is BNSF's system railway police center.

Right-of-Way (ROW) – The area that extends 25 feet from the nearest rail and/or property that is dedicated to rail operations.

Security Dispatch Center - The communications desk located at Sound Transit's Union Station provides 24-hour dispatch services, including contact with Station Agents and ST Police (and CCTV, PA and Variable Messaging Signage at designated stations) for all Sound Transit services and facilities. (General: 206-398-5268; incoming hotline for BNSF related emergencies: 206-689-3300).

Service Interruption Desk (SID) - Located in Fort Worth, Texas, the two Service Interruption Desks are BNSF's system notification, documentation and dissemination of FRA required information.

Siding - A track connected to the main track and used for meeting or passing trains.

Single Track – A main track where trains are operated in both directions

Sound Transit – The Regional Transit Authority authorized to tax and manage several transit systems including commuter rail (Sounder) buses, and LINK.

Station – A place designated for the purpose of loading and unloading passengers, including patron service areas and ancillary spaces associated with the same structure.

Station Platform – The area of a station immediately adjacent to a guideway, used primarily for loading and unloading passengers.

Train – Any number of vehicles coupled together and moving as a unit (consist).

Truck – An assembly of a structural frame, with two parallel axles and four wheels, friction brake components, and suspension elements, that supports a portion of the vehicle weight.

Variable Message Sign (VMS) – Visual message board preprogrammed to deliver emergency messages, warning, and system information.

Appendix B - Acronyms

Acronym List

AAR	After Action Report
ABS	Arson Bomb Squad (Seattle Police Department)
AFA	Automatic Fire Alarm
CBRNE	Chemical, biological, radiological, nuclear, and high-yield explosives
CCTV	Closed Circuit Television System
CP	Command Post
DHS	U.S. Department of Homeland Security
DOC	Department Operations Center
ED	Emergency Department
EEG	Exercise Evaluation Guide
EMP	Emergency Management Panel
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOD	Explosives Ordnance Disposal
EPB	Earth Pressure Balance
E-Tel	Emergency Telephone
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FOUO	For Official Use Only
FRA	Federal Rail Administration
FSE	Full-scale exercise
FTA	Federal Transit Administration
HazMat	Hazardous materials
HICS	Hospital Incident Command System
IAP	Incident Action Plan
ICP	Incident Command Post
ICS	Incident Command System
IED	improvised explosive device
IP	Improvement Plan
KCDOT	King County Department of Transportation
KCECC	King County Emergency Coordination Center
KCM	King County Metro
KCSO	King County Sheriff's Office
LCC	Link Control Center
LRV	Light Rail Vehicle

Acronym List

LSC	Logistics Section Chief
MACC	Multiagency Coordination Center
MCI	Mass-casualty incident
MPM	Mile Post Marker
MT	Metro Transit
NCC	National Communications Center
NIMS	National Incident Management System
NOC	Network Operations Center
NTSB	National Transportation Safety Board
OCS	Occupancy Control System
OSC	Operations Section Chief
PIO	Public Information Officer
PM	Project Manager
POC	Point of Contact
PPE	Personal Protective Equipment
PSC	Planning Section Chief
ROCC	Resource Operations Control Center
ROW	Right of Way
RSP	Render safe procedures
SDOT	Seattle Department of Transportation
SID	Service Interruption Desk
SEM	Sequential Excavation Method
SFD	Seattle Fire Department
SLUS	South Lake Union Streetcar
SO	Safety Officer
SOP	Standard Operating Procedure
SPD	Seattle Police Department
ST	Sound Transit
STP	Sound Transit Police
SWAT	Special Weapons and Tactics
TCL	Target Capabilities List
TR	Tacoma Rail
TSA	DHS Security Transportation Security Administration
UCP	Unified Command Post
US&R	Urban Search and Rescue
VBIED	Vehicle-borne Improvised Explosive Device

Acronym List

VFD	Variable Frequency Device
VMS	Variable Message Sign
WMD	Weapon of Mass Destruction
WSDOT	Washington State Department of Transportation

END